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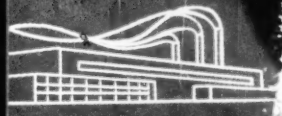

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Editorial

High Road to Ruin

IS CREEPING INFLATION inevitable? It is if we accept the assumption as fact. For once we accept it, all our thinking and action will be influenced by inflation's threats and promises. If we accept it in fear and begin to stockpile inventories, we increase the momentum of inflation. If we accept it in tacit anticipation of its immediate gains, we betray a fatal ignorance of a fundamental principle of economics.

However, before we point the accusing finger, we ought to make a distinction between the justifiable price we pay for the increased benefits in this era of generous living and the mathematic deception by which prosperity is magnified and distorted. There have been material gains in the form of shelter, food, comforts, travel, education, and recreation, and there has been a net gain in per capita wealth to pay the price.

Yet there has also been a net loss which must be taken into account—the loss of will, among citizens at all levels, to face the hidden dangers of a wage-price spiral which mocks all copybook axioms of thrift, honesty, and integrity. This is a period when false prophets rise up and advocate increased Government spending when they know it is only a way of making the dollars spin without a meaningful increase in the economic health or wealth of the nation.

The one way to slow up inflation is to fight it with a vigorous program of management economy and productivity that stabilizes wages and prices. Any sudden drop in prices is a painful jolt, but a pause on the price escalator would be welcome in many industries. Even a slight decline achieved by better techniques, better management, better selling, and less featherbedding would recover some lost or stagnant markets. There comes a time when the law of gravity influences the law of supply and demand and doubles its force in a collapse of prices.

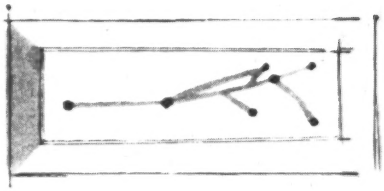
What should be the counterattack to inflationary forces? First and most necessary is the moral conviction that inflation is a subtle, habit-forming drug that must be resisted and conquered by heroic self-discipline. The initial acceptance of this high standard must come from the leaders in management and labor.

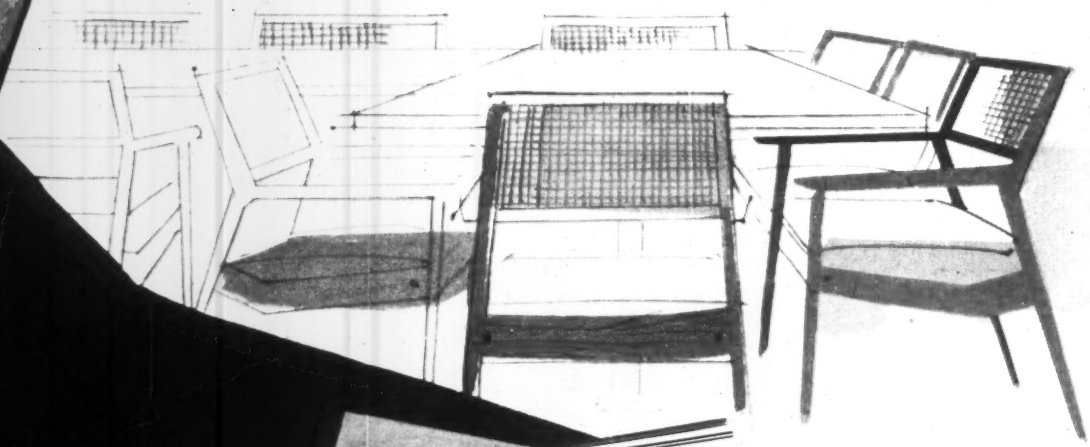
If industry and labor hold the line against the inflationary incentive of a work stoppage, if the Federal Reserve Board maintains an adequate level of credit flow in the channels of trade, if inventories are kept up to healthy levels, and if the average citizen is given reasonable assurance that his savings are secure against the sneak thief of values, we shall have reason to believe that resistance to inflation is coupled with the will to win.

But responsibility for the will to win rests with all of us. It is up to the nation's four and a half million business men to turn their backs on the temptation of short-term benefits and take a long look at their future and the future of the communities they serve.

The Editors

YOUR EYES AND EARS...





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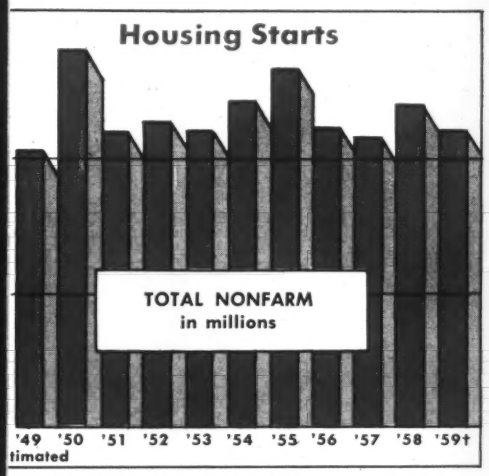


Source: U.S. Department of Labor

- **CONSTRUCTION:** ***Gains in commercial and public building will offset a lag in housing in the last half***
- **PRODUCTION:** ***Marked gains in the output of steel and durables will result in record levels in the first half***
- **INCOME:** ***Higher wages and salaries will boost total personal income to new peaks for most of the first six months***
- **SALES:** ***Increased consumer interest in household durables will help widen year-to-year gains in retail volume***
- **EMPLOYMENT:** ***During the next few months, employment levels will recover more slowly than the rest of the economy***

Slow Climb Toward New Peaks

BOLSTERED BY RECENT INCREASES in industrial production, consumer buying, personal income, and construction activity, the recovery has gained momentum, and the outlook is bright for a continued upswing in the coming months. Although prospects for capital spending, employment, and housing starts are a bit hazy, over-all business activity will move steadily upward, and many pre-recession peaks will be matched.

Sparked by a gradual rise in manufacturers' new orders, **industrial production will edge up to record levels** during the next few months. Business men will build up inventories at a somewhat greater rate to accommodate a high level of retail trade.

Peak levels of personal income will offset the effect of slightly higher prices on consumers' buying intentions.

Further **marked increases in public construction and commercial building** are in prospect, while the rise in industrial outlays will be more gradual.

Employment levels will expand as production increases, but **improvement in the unemployment situation will continue to be slow.**

Higher sales will mean higher profits, but business men will be cautious in spending for new plants. **No substantial gain in capital spending** will occur until late in 1959 when much of the existing excess capacity will be put to use.

Housing starts will remain high until mid-year and then begin to move downward.

Manufacturers will step up their output schedules to cope with the steady rise in new orders. By the end of the first quarter, the Federal Reserve Board's Index of Industrial Production will hit the seasonally adjusted pre-recession and all-time peak of 146 (1947–49 = 100) set in December 1956 and again in February 1957. New records will be achieved in the second three months of the year, but a steel strike in the Summer could mean a decline in the third quarter.

The possibility of a lengthy walkout in the steel industry has prompted an upsurge in new orders for steel from most consumers in recent weeks. Orders have exceeded shipments, and backlogs have expanded noticeably. Some producers have begun allocating certain types of steel products in short supply. This trend will continue in the coming months until there is some indication of the outcome of labor negotiations in the industry.

Ingot production has been at the highest level since early 1957. Many idle facilities have been put back into operation, and producers have rehired idle workers and enlisted new help.

Although sales of new passenger cars have maintained substantial year-to-year gains so far this year, volume has been somewhat below the expectations of many manufacturers. As a result, some producers have somewhat reduced their output schedules.

Another deterrent to output has been the glass shortage at Chrysler Corp. which resulted from a strike in the glass industry. This also has cut retail deliveries and possibly has had an effect on the over-all auto sales picture.

The outlook in the automobile industry in the coming months will depend largely on consumer buying in the next few weeks. Most auto producers expect sales to hit 5.5 million this year. The Big Three have stepped up plans to produce small, economy vehicles, but none will appear on the market until some time during the latter half of the year.

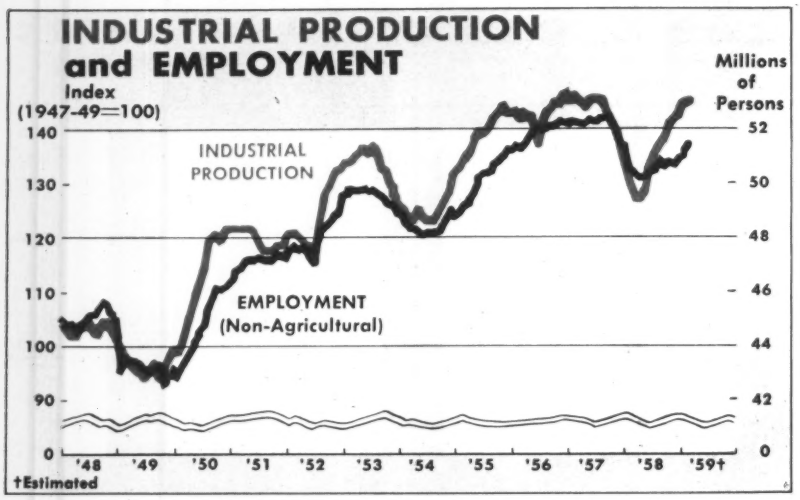
Production in the electric power, petroleum, coal, and lumber industries will continue to show noticeable gains over a year ago.

As production moves up, more business men will think

continued on page 8

about increasing expenditures for new plants and equipment, but no significant gains in capital spending will appear before the last quarter of the year. Recent reports of noticeable increases in orders for machine tools have led some to expect a rise in capital spending will occur sooner than previously anticipated.

A steady rise in volume at retail and wholesale levels will result in a similar trend in manufacturers' sales and new orders. The gains in durable goods will be more noticeable than in nondurables, but during the first half both will post substantial gains over a year ago. The rise in durables will be due chiefly to further gains in motor vehicles and steel.



EMPLOYMENT RECOVERY LAGS: *The recovery in employment has lagged behind production a little more than usual. Sources: Federal Reserve Board, U. S. Dept. of Labor.*

Inventory build-up starts

Stepped-up business activity will draw much support from an increasing rate of inventory accumulation. Business men will be cautious, but the book value of manufacturing and trade inventories will be moderately higher by the end of the year than it was at the end of 1958.

A significant expansion in inventories will begin sooner among wholesalers and retailers than among manufacturers. The stock-sales ratio, or the relation of inventories to sales, in wholesaling and retailing is at the lowest level since early 1951. But in manufacturing the decline has not been so great. There will be no appreciable build-up of manufacturers' holdings until some time in the middle of the second quarter.

The rise in retail trade will reflect the fact that the consumer will be a little better off in 1959 than he was in 1958. The increase in disposable personal income, or income available for spending and saving, will be more significant than price increases on retail commodities. Higher average weekly and hourly earnings will account for this increase in income.

Total personal income will continue to hit peak levels through the first half of the year.

Much of the rate of increase in business activity depends on the consumer. Despite adverse weather conditions in many areas this Winter, retail sales reached record levels. Retailers were much encouraged by the increase in sales of durable goods, especially big-ticket items. Declines in this sector were responsible for a good part of the recent recession.

Sales will increase this year as consumers replace obsolete and worn television sets, laundry equipment, dishwashers, and refrigerators. There will be substantial year-to-year gains in other household items such as floor coverings, small appliances, draperies, and linens. Furniture sales will widen current gains over last year, and the usual upsurge will occur in purchases of Summer lawn furniture and metal tables and chairs.

This year's early Easter will not hurt women's apparel volume. The sales of fashion accessories, Spring dresses, and sportswear will reach record levels. Year-to-year gains in men's clothing will not be so great, but here again peak levels will be achieved. Some apparel stores which reported early buying of men's lightweight suits in February hope this indicates record sales for the season.

Record food sales ahead

Food sales will continue to exceed year-ago levels, with the most noticeable gains in frozen vegetables and juice concentrates, fresh produce, and dairy products. Purchases of canned goods will not show as marked gains as other food items.

The pick-up in installment buying that occurred at the end of 1958 and early this year will continue in the coming months. Many consumers have now paid off old obligations and are ready to enter the credit market. An increased demand for big-ticket appliances and automobiles will result in a higher rate of installment buying. There will also be a marked rise in credit sales at department stores.

Continued declines in food prices will hold consumer prices at current levels for most of the first half of the year, but over-all prices will start creeping upward some time in the third quarter. This will be the result of limited stocks in some lines and the steady rise in demand.

Another wage-price hike

Another stimulant to higher prices will be the granting of higher wages in some industries, as well as the financing of Government expenditures through commercial banks. Some economists are encouraged by the fact that in recent weeks the Government has obtained funds by selling securities outside the banks.

The Federal Reserve Board will keep a watchful eye on the increased business activity and the possibility of price hikes. If substantial price increases occur, the Board will consider raising the discount rate to control the extension of credit in an attempt to prevent inflation.

At the wholesale level, lower food prices have recently offset rises in textiles, metals, and rubber. Further price increases are in prospect for textiles as trading picks up and supplies are reduced.

Following a few weeks of sluggish mid-Winter activity, textile trading picked up in recent weeks. Many wholesalers think this is due to an attempt by buyers to beat anticipated price increases. Despite higher prices,

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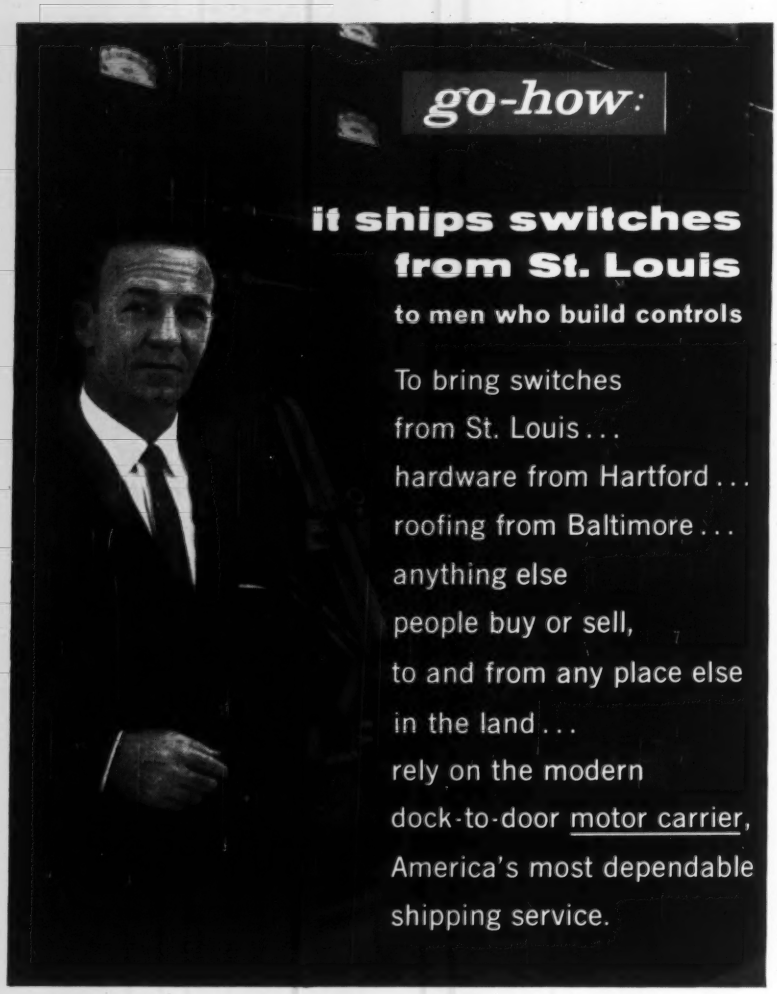

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textile activity will continue to exceed comparable year-ago levels by a wide margin. Apparel manufacturers will begin to build up stocks to cope with expected increases in sales, and orders for industrial fabrics from automobile producers will stay at high levels.

Retailers, expecting consumer interest to extend beyond the Easter selling season, placed heavy re-orders for women's Spring apparel in the last few weeks. Bookings in both men's and women's Summer merchandise will continue to rise and will be comfortably above year-ago levels.

As the year progresses, wholesalers will report more substantial gains in appliances, furniture, and housewares.

WAGES HAVE ADVANCED *at a somewhat faster rate than consumer prices in recent years. Source: U.S. Department of Labor.*

Employment: better than it looks

Reports of a relatively high unemployment level have apparently had little effect on consumer buying in the past few months. The number of jobless early this year was at a post-war peak, showing that this phase of the recovery still lags behind other sectors of the economy. But when this unemployment figure is viewed in relation to the total labor force, the picture is not so disheartening.

Taking into account seasonal differences, the unemployment rate has recently hovered around 6.0 per cent of the labor force. This is appreciably lower than the recession peak of about 7.5 per cent. The fact remains, however, that improvement in the unemployment situation has been slower than it was during the 1954 recovery.

As industrial production picks up, employment levels will grow, and the number of jobless will drift downward. These changes will be gradual through the first six months of the year, but the improvement will add some impetus to consumer spending.

Building: some down, some up

Contracts for industrial construction are still lagging, and no marked improvement is probable until later in the year. This lag has been offset by gains recently in commercial building, housing, and public outlays for highways, schools, and dams.

Despite bad weather conditions, housing starts climbed to exceedingly high levels early this year. After taking into account seasonal differences, this trend will remain high in the coming months but will decline in the last half of the year. Mortgage money most likely will be more difficult to come by later in the year, which will discourage many prospective home buyers. The level of housing starts for the year as a whole will be moderately below 1958.

Although the stock market showed continued signs of hesitancy early in February, it made up some of its losses shortly thereafter as encouraging reports on business conditions appeared. Further advances in business activity will most likely result in continued increases in stock prices.

Business Failures page 12

——Weekly Business Signposts——

	Latest week	Previous week	Year ago
Steel ingot production.. Ten thousand tons (a)	244	237	138
Electric power output.. Ten million KW hours (b)	132	133	124
Bituminous coal mined. Hundred thousand tons (c)	83	83	80
Automobile production. Thousand cars and trucks (d)	143	139	120
Department store sales. Index 1947–1949=100 (e)	111	108	103
Bank clearings, 26 cities Hundred million dollars (f)	24.3	22.4	25.3
Business failures..... Number of failures (f)	292	271	319

SOURCES: (a) Amer. Iron & Steel Inst.; (b) Edison Electric Inst.; (c) U.S. Bureau of Mines; (d) *Automotive News*; (e) U.S. Bureau of Labor Statistics; (f) DUN & BRADSTREET, INC. Steel and bank clearings data for the third week in February; all others for the second week; failures for the second week; all others for the third week.

This report was prepared in the Business Economics Department, DUN & BRADSTREET, INC., by John W. Riday.

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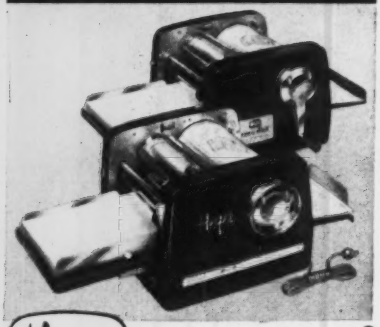

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2. **IMPROVED COUNTER**—direct gear drive; greater accuracy, top visibility conquer waste.
3. **ADJUSTABLE FEED WHEELS**—grip paper at outer edges, give positive performance.
4. **FEED TENSION CONTROL**—assures non-skip feeding—thin papers to post cards.

Conqueror Duplicators also include such Heyer "firsts" as Copy Positioner Control which raises or lowers copy quickly and effortlessly . . . Visible Fluid Supply which conquers the problem of running dry . . . simple, positive Fluid and Pressure Controls . . . and the Automatic Start-Stop (on electric models) which shuts off the machine when the last sheet is printed. These and many more exciting features give you an outstanding combination found only in Conquerors, at *no increase in prices!*

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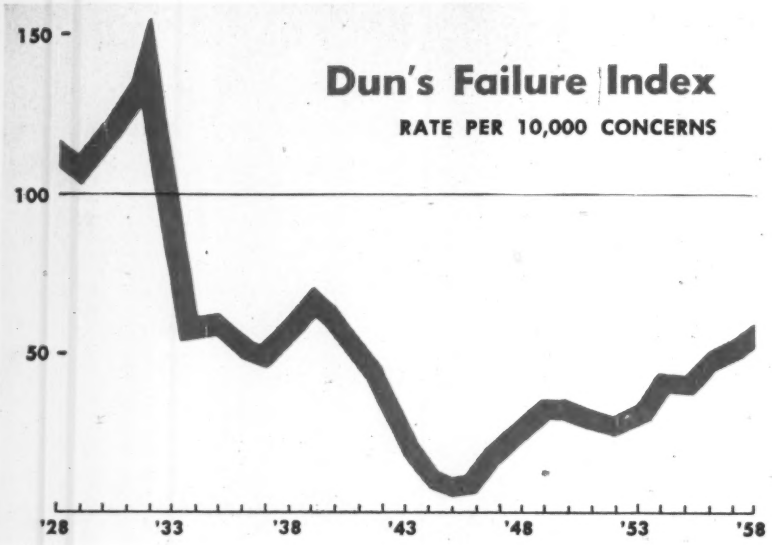
Business Failures



Seasonal Casualties Boost Toll

AN 18 per cent increase from December brought business failures in January to 1,273, the highest total in eight months. Most of the rise, however, was seasonal. Casualties remained slightly below the postwar peak of 1,279 for the similar month a year ago. Businesses succumbed this January at an apparent annual rate of 51 per 10,000 enterprises listed in the DUN & BRADSTREET *Reference Book*. This seasonally adjusted rate was off slightly from December and below the 53 per 10,000 last year.

A considerable increase in the number of casualties with liabilities above $100,000 was recorded in January. The rise in this size group was combined with mild increases among small and medium-size failures to push aggregate liabilities to $73.6 million, 29 per cent more than in December and 14 per cent above January 1958.

Hefty rise in retailing

Retailers primarily accounted for the month-to-month upturn, with a toll 25 per cent above December. This

WHY BUSINESSES FAIL — Year 1958

APPARENT CAUSES	MFG. %	WHOL. %	RET. %	CONST. %	COMM. SERV. %	TOTAL %
NEGLECT	2.3	4.0	3.6	3.7	3.5	3.4
FRAUD	2.1	3.9	1.8	1.9	1.7	2.1
INEXPERIENCE, INCOMPETENCE	93.4	90.8	91.8	91.8	92.3	92.0
Inadequate sales	58.5	50.2	53.7	38.5	56.2	52.2
Heavy operating expenses	6.8	5.1	3.5	9.1	6.2	5.2
Receivables difficulties	14.3	20.3	6.3	17.6	6.0	10.7
Inventory difficulties	5.4	11.1	11.2	2.0	2.3	8.1
Excessive fixed assets	10.8	3.7	6.1	5.4	17.2	7.5
Poor location	0.5	1.0	4.6	0.3	1.6	2.7
Competitive weakness	14.6	20.1	21.8	28.8	19.1	21.1
Other	4.9	4.8	3.4	7.0	3.1	4.3
DISASTER	1.5	1.0	1.5	0.5	1.0	1.3
REASON UNKNOWN	0.7	0.3	1.3	2.1	1.5	1.2

Compiled by DUN & BRADSTREET, INC. Classification based on opinions of creditors and information in credit reports. Since some failures are attributed to a combination of causes, percentages do not add up to 100 per cent.

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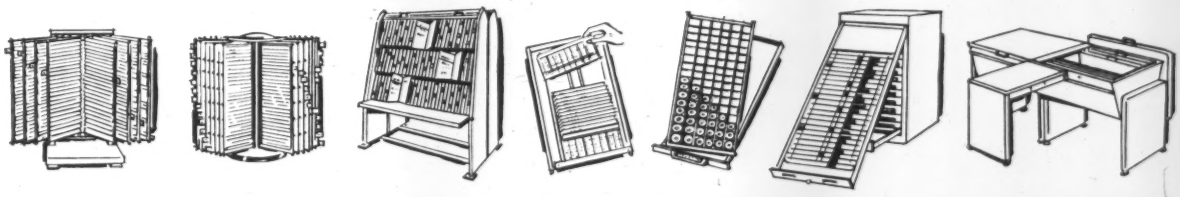

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Company_____
Attention_____
Address_____
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compared with casualty increases in other industry and trade groups ranging from 7 per cent in construction to 16 per cent in manufacturing. Within retailing, steep climbs were noted in general merchandise stores and in apparel, furniture, and furnishing outlets.

However, both manufacturing and retailing casualties were below January 1958 totals. Appreciable declines also occurred among automotive and building materials retailers and among manufacturers in the iron and steel industry.

In contrast, wholesaling and construction mortality exceeded comparable 1958 levels. More than twice as many machinery wholesalers failed. And subcontractors—particularly those engaged in painting, excavating, and road building operations—largely accounted for the higher construction failures. Heavier transportation casualties boosted the commercial service total above the previous January.

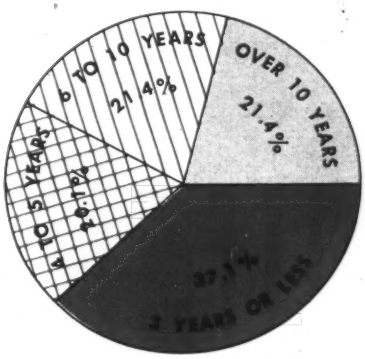
Regional reports

In two regions, the West South Central and Pacific states, failures ran contrary to the seasonal December-to-January increase. The Texas total declined appreciably, while all three states of the Pacific region reported downturns. Large cities felt the brunt of the month-to-month rises. New York,

FAILURES BY DIVISION OF INDUSTRY

	Cumulative total		Liabilities in million $	
	January			
	1959	1958	1959	1958
MINING, MANUFACTURING	215	217	17.1	24.9
Mining—coal, oil, misc.	3	6	0.8	0.5
Food and kindred products	13	14	0.6	0.8
Textile products, apparel	43	45	1.8	2.0
Lumber, lumber products	40	36	1.8	1.9
Paper, printing, publishing	16	9	0.7	0.6
Chemicals, allied products	5	5	0.6	0.2
Leather, leather products	8	12	0.8	2.5
Stone, clay, glass products	8	6	1.4	1.4
Iron, steel, products	9	14	0.5	0.9
Machinery	21	18	3.2	1.3
Transportation equipment	10	4	0.9	6.6
Miscellaneous	39	50	4.0	6.3
WHOLESALE TRADE	132	130	8.5	5.5
Food and farm products	25	25	1.6	1.1
Apparel	4	10	0.1	0.3
Drygoods	2	4	*	*
Lumber, bldg. mats., hdwre.	17	17	1.7	1.6
Chemicals and drugs	2	4	*	0.1
Motor vehicles, equipment	11	10	0.5	0.2
Miscellaneous	71	60	4.5	2.1
RETAIL TRADE	642	676	33.2	20.8
Food and liquor	104	96	6.3	2.3
General merchandise	41	34	1.2	2.2
Apparel and accessories	115	133	11.3	2.9
Furniture, furnishings	90	84	3.9	3.2
Lumber, bldg. mats., hdwre	41	58	1.2	2.9
Automotive group	69	86	1.7	2.7
Eating, drinking places	106	121	5.9	3.0
Drug stores	11	10	0.2	0.3
Miscellaneous	65	54	1.4	1.3
CONSTRUCTION	188	176	8.3	9.9
General bldg. contractors	60	82	3.6	5.0
Building subcontractors	114	86	3.4	3.9
Other contractors	14	8	1.3	0.9
COMMERCIAL SERVICE	96	78	6.6	3.4
TOTAL UNITED STATES	1,273	1,279	73.6	64.4

Liabilities are rounded to the nearest million; they do not necessarily add up to totals.
*Less than $100,000.



AGE OF BUSINESSES FAILING IN 1958

Chicago, Cleveland, Boston, and Newark, N.J., had considerably higher failures than in the previous month.

However, casualties dipped below last year's levels in six of the nine major regions. The Middle Atlantic, East North Central, and West South Central states were the exceptions to this trend. In these regions, a few states—New Jersey, Pennsylvania, Ohio, Illinois, and Louisiana — were largely responsible for a continuing rise over year-ago totals.

Business Men's Expectations page 16

THE FAILURE RECORD

	Jan. 1959	Dec. 1958	Jan. 1958	% Chg.†
DUN'S FAILURE INDEX*				
Unadjusted	52.6	48.2	55.3	− 5
Adjusted, seasonally	51.1	51.3	53.2	− 4
NUMBER OF FAILURES	1,273	1,082	1,279	− 1
NUMBER BY SIZE OF DEBT				
Under $5,000	172	147	199	−14
$5,000–$25,000	629	530	603	+ 4
$25,000–$100,000	335	311	340	− 1
Over $100,000	137	94	137	0
NUMBER BY INDUSTRY GROUPS				
Manufacturing	215	185	219	− 2
Wholesale trade	132	118	130	+ 2
Retail trade	642	515	676	− 5
Construction	188	176	176	+ 7
Commercial service	96	88	78	+23
LIABILITIES (*in thousands*)				
CURRENT	$73,564	$57,069	$64,442	+14
TOTAL	73,564	57,319	64,535	+14

*Apparent annual failures per 10,000 enterprises listed in the DUN & BRADSTREET *Reference Book*.

†Percentage change, January 1959 from January 1958.

In this record, a "failure" occurs when a concern is involved in a court proceeding or in a voluntary action likely to end in a loss to creditors. "Current liabilities" here include obligations held by banks, officers, affiliated and supply companies, or the governments; they do not include long-term publicly held obligations.

This report was prepared in the Business Economics Department by Rowena Wyant.

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Business Men's EXPECTATIONS

Second Quarter Prospects: More Sales, Higher Profits

SALES TOPPING last year's totals are foreseen by 77 per cent of the 1,542 business executives interviewed in DUN & BRADSTREET's most recent compilation of business men's expectations for the second quarter. In the latest survey, 20 per cent foresee no change in sales, and only 3 per cent think they will be below last year.

This is nearly twice the number of optimistic opinions offered in last year's survey of second quarter prospects. While most such inquiries result in quite optimistic reports, the favorable sales outlook expressed in the current survey matches that of the inquiries of 1950 and 1955.

This sales optimism prevails in all the major classifications, but it is a shade higher among the wholesalers. Makers of durable goods are a little less hopeful than nondurables manufacturers, while three months ago they were more optimistic.

Among the retailers, 77 per cent anticipate sales gains, as against 36 per cent a year ago.

As for profit prospects, 58 per cent of those interviewed in the current survey expect year-to-year gains during the second quarter, and 38 per cent hope they will match year-ago levels. The outlook here is a good deal more cheerful than in the previous survey, and hopes are much higher than they were a year ago.

The proportion looking forward to profit gains is highest among the manufacturers of durable goods, as it was three months earlier. Wholesalers do not show quite so much optimism in this respect.

Those executives planning to build up their inventories outnumber those considering reductions more than three to one, but more than half expect to hold inventories at year-earlier levels. Producers of durables are the most interested of all respondents in expanding their holdings. Although the majority of retailers expect no year-to-year change, they are the least inclined to expand their stocks and the most interested in reducing them.

The sentiment among manufacturers in regard to new orders is pretty much the same as it was three months ago, but much more hopeful than in last year's poll. Seventy-one per cent of durables manufacturers now are looking forward to increases, while 63 per cent of nondurables manufacturers anticipate gains. A year ago only 36 per cent in either category expected increases.

Twenty-seven per cent of all business men expect to raise their prices over the 1958 level, compared with 24 per cent in the previous survey. A large majority of 70 per cent, however, contemplate no change in prices. Higher prices are most often foreseen by the wholesalers.

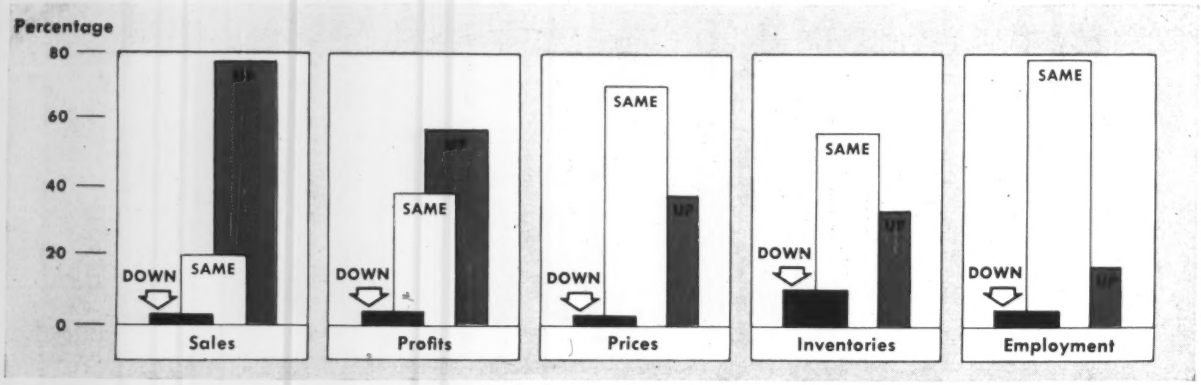
Most of those considering the expansion of their payrolls are among manufacturers of durable goods, but more than twice the number in this category expect no change.

It should be remembered that this survey is not a forecast, but an indication of the views held by a representative group of business men when the survey was made late in January.

—JOHN W. RIDAY,
Business Economics Department

SECOND QUARTER OUTLOOK
COMPARED WITH YEAR-EARLIER OPINIONS

% in 1958				% in 1959		
Up	Same	Down		Up	Same	Down
			ALL CONCERNS			
40	37	23	Sales	77	20	3
28	49	23	Profits	58	38	4
21	72	7	Prices	27	70	3
17	61	22	Inventories	33	57	10
10	79	11	Employment	17	78	5
			MANUFACTURERS			
41	35	24	Sales	76	20	4
29	46	25	Profits	60	35	5
17	76	7	Prices	23	74	3
17	63	20	Inventories	36	54	10
11	76	13	Employment	24	71	5
36	44	20	New Orders	67	29	4
			WHOLESALERS			
41	35	24	Sales	78	20	2
27	51	22	Profits	54	42	4
30	64	6	Prices	35	62	3
20	59	21	Inventories	30	62	8
8	84	8	Employment	11	86	3
			RETAILERS			
36	45	19	Sales	77	20	3
26	53	21	Profits	55	41	4
16	78	6	Prices	27	71	2
13	63	24	Inventories	27	58	15
8	82	10	Employment	10	84	6



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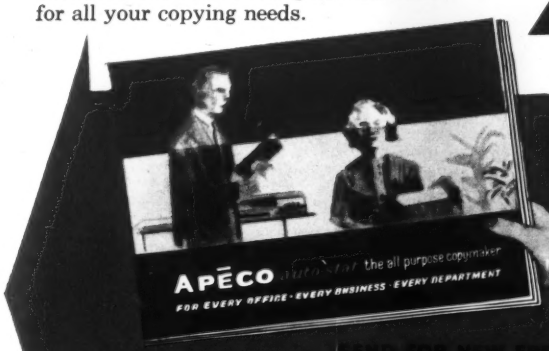

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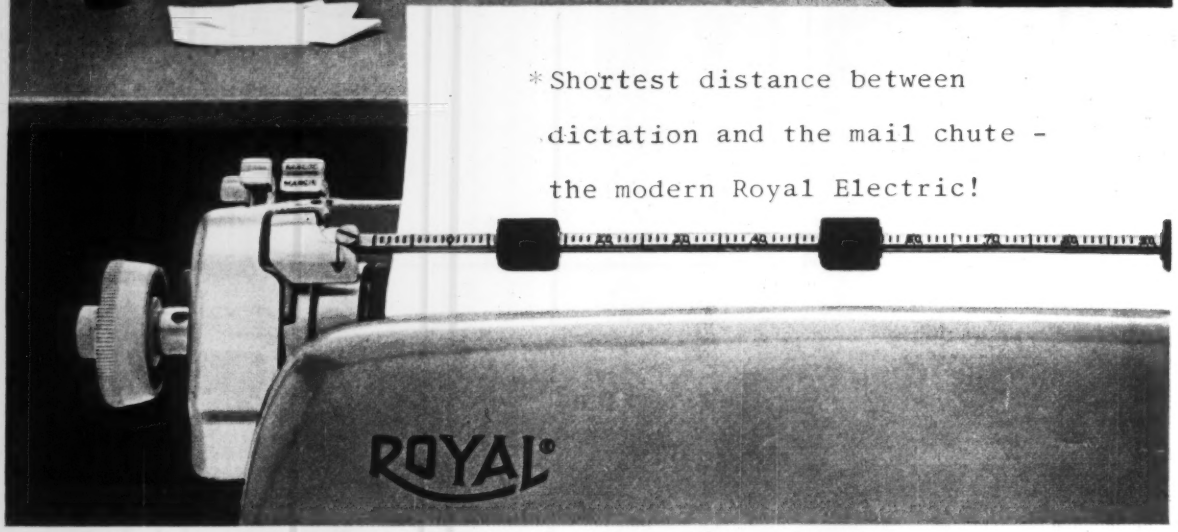

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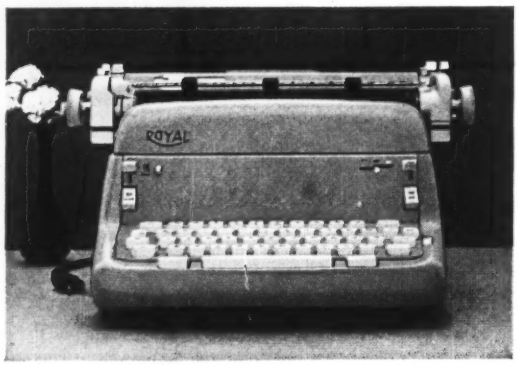

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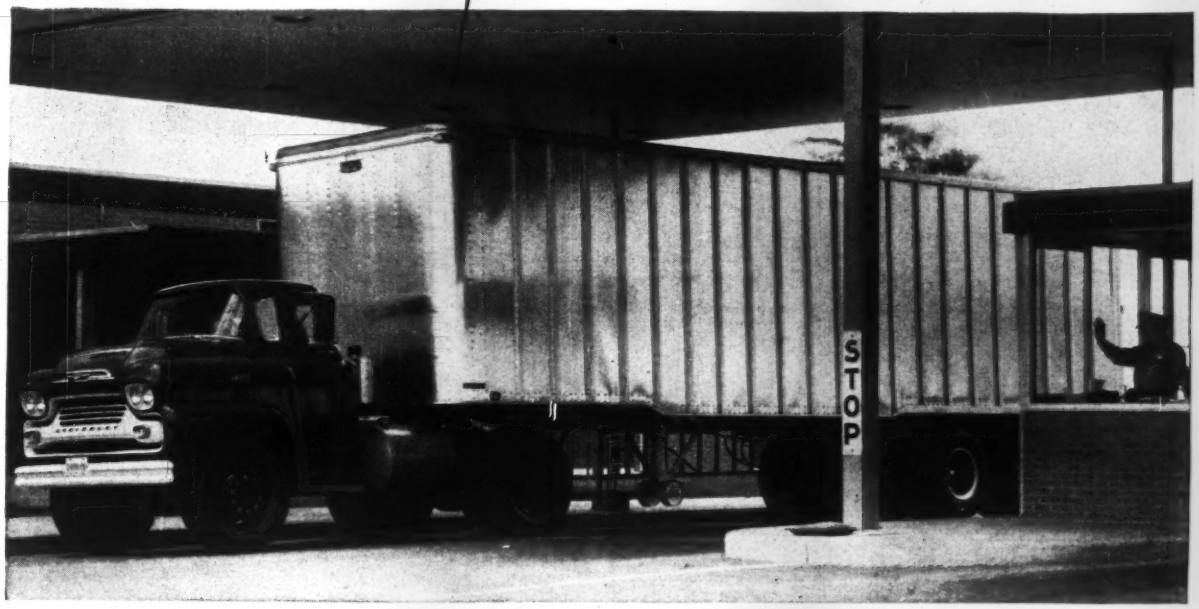

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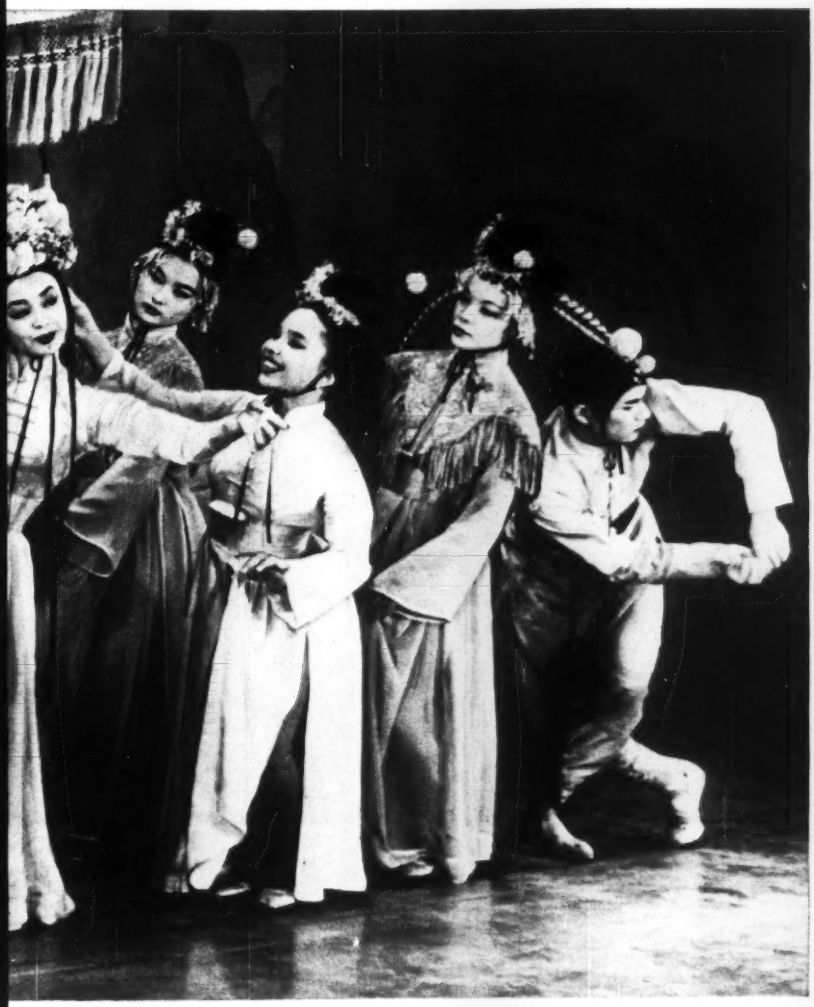

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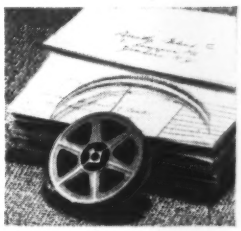
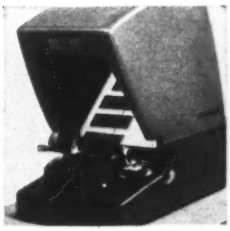


Hundreds of items can be photographed in 1 minute. Film rolls are stored at finger tips for instant reference. Face-stamping of items is big help in auditing —proof that they've been run through microfilmer.



Speeds reference in Film Reader. Kodamatic Indexing, a unique feature of Recordak Reliant, puts code lines on the film, which lead you right to desired pictures. Saves time every time films are viewed.

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Gentlemen: ☐ Have representative phone for appointment. ☐ Send free booklet, "Short Cuts with Recordak Microfilming."

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Chevy power is tough—

proves it with big savings on grueling delivery schedule!

The '59 Chevrolet shown here is on the go day and night delivering newspapers throughout west-central Florida. It covers as much as 587 miles a day . . . runs so constantly that its engine never cools off completely! Yet the truck, with newly improved Thriftmaster 6, is delivering 19.3 miles per gallon!

Here's on-the-job proof that Chevy's newly improved Thriftmaster 6 is set to chop your fuel costs to a new low—to save you dollars every day you go out on the job!

Delivering the Tampa Tribune & Times throughout west-central Florida, this truck hustles morning, noon and night to stay on schedule; keeps up a brisk pace over narrow, busy highways. It's forced to slow down and speed up continuously to meet traffic conditions and it runs so constantly that the engine never cools off entirely—yet it's averaging 19.3 miles per gallon!

Here in Florida, Chevy's 1959 Thriftmaster 6 with new Economy-Contoured Camshaft is showing its ability to keep expenses *down!*

Fighting the clock every mile, Chevy panel keeps on going—and saving—night and day.

No job's too tough for a

Chevy's powered to cut costs and keep going on your hurry-up hauls!

That's for *sure*, whether you use light-duty pickups, panels, stakes or chassis-cab trucks—whether you prefer 6's or V8's.

Take the 1959 Chevrolet Thriftmaster 6, for example, the engine that's building such a sensational economy record in the panel truck pictured above. Standard in all Series 30 and 40 models, it offers you proved stamina and saving ability that stems from a basic construction that's tops for tough truck power: efficient valve-in-head design, durability supplied by long-lasting Al-dipped exhaust valves, high-alloy steel inlet valves, forged steel crankshaft and rugged precision bearings.

And this year the 135-h.p. Thriftmaster 6 provides new refinements that assure unprecedented economy. A new Economy-Contoured Camshaft, designed to provide less valve lift and overlap, improves gas economy by as much as 10% in normal operation—and by almost 25% when the engine is idling. And a new Maximum-Economy Option* cuts fuel consumption *an additional 10%* in Series 31 and 32 models.

Or if you're a V8 man, Chevy's *still* your best bet. Any light-duty conventional model you choose can be equipped with the big 160-h.p. 283-cubic-inch Trademaster V8*. It offers the *shortest piston stroke* of any V8 in its field, a sure sign of more work on less fuel. And it's loaded with up-to-the-minute features that know how to trim overhead: hydraulic valve lifters, oil bath air cleaner, full-flow oil filter, and dozens more.

V8 or 6, you'll go a long way before you see the likes of this '59 Chevy light-duty engine lineup. Actually, there's only one *best place* to go for all your trucking needs—and that's to your Chevrolet dealer's. . . . Chevrolet Division of General Motors, Detroit 2, Mich.

**Optional at extra cost.*

Chevrolet truck CHEVROLET

Cost Cutting Ideas for Your Office...

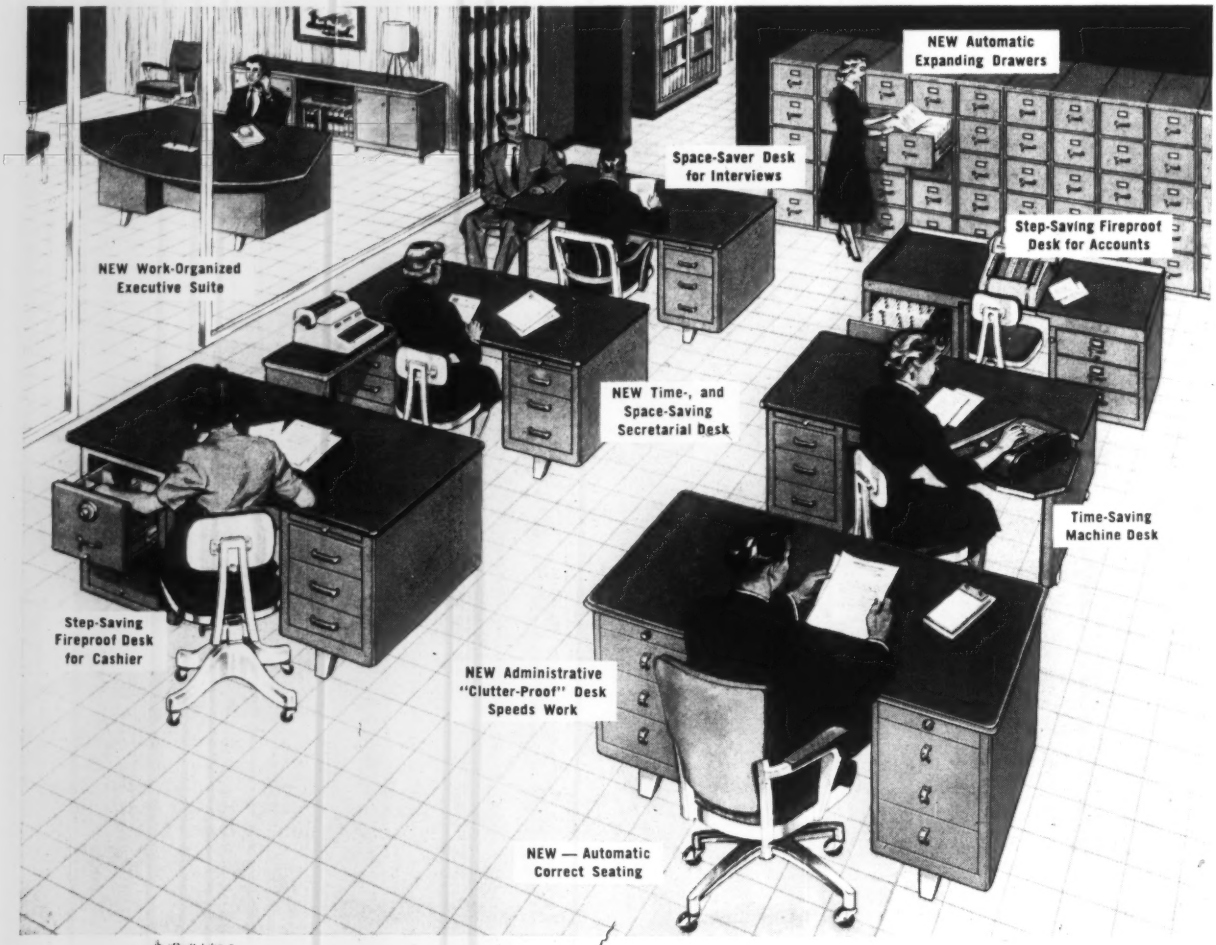
COST REDUCTION, a vital problem in all divisions of a business is nowhere as challenging as in the administrative departments. Office costs, having trebled during the past decade, are today *of primary concern* to top management.

It is in the record that since 1899 Shaw-Walker has been equipping business with "time-engineered" office facilities as inventive and ingenious as American production techniques, — that Shaw-Walker equipment and systems *have cut office costs*, saved floor space and made offices more livable.

For today's *cost-conscious* management Shaw-Walker "time-engineering" research has now produced — The work-organized "clutter-proof" desk; Automatic expanding file drawers; Step-Saving Fire-Files and fireproof desks that protect records at point-of-use; Labor-Saving equipment and systems for tape handling; Error-Proof filing systems; Automatic correct seating chairs; Time-Saving payroll plans; and Numerous Other Devices that facilitate recording, filing and finding of records.

Some of these "*cost-cutters*" are pictured here. All are in the 252-page Shaw-Walker Office Guide.

Throughout, descriptions plainly state economies you can expect from Shaw-Walker "time-engineered" equipment and systems. *Free to Management when requested on business letterhead. Write Shaw-Walker, Muskegon 56, Michigan.*


NEW Automatic Expanding Drawers
Space-Saver Desk for Interviews
Step-Saving Fireproof Desk for Accounts
NEW Work-Organized Executive Suite
NEW Time-, and Space-Saving Secretarial Desk
Time-Saving Machine Desk
Step-Saving Fireproof Desk for Cashier
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Muskegon 56, Mich. Representatives Everywhere

Voice of Industry

An industrial revolution; the anatomy of inflation; price and the public interest; toward more productive labor; humanism in a technical age.

DON G. MITCHELL, *chairman of Sylvania Electric Products, Inc.*

Electrons for Industry

Every industrial and commercial field is destined to go through an electronic revolution in the next five or ten years. Home electronics has boomed with television, and national defense is becoming increasingly electronified, but the big untapped reservoir is the commercial and industrial market, both from the standpoint of production and the end product itself.

Whether it is food processing, manufacturing, transportation, or communications, the heart of these activities will be an electronic gadget of some sort. It may be a microwave communications network or some process control device, but it will be electronic.

Although electronic computers have taken the limelight as far as industrial and commercial applications of electronics are concerned, there is the even broader area of communications—the use of electronics to gather information and deliver it to where it is needed. This information could be an inventory report from one of your plants to the head office, a closed-circuit television picture of the traffic density on an expressway, a radar picture of the air traffic pattern around an airport, the control of ore handling at an unloading dock, a lecture from a university laboratory to classrooms all over the state, the regulation of raw materials flow through a fabricating plant, or the control of an atomic power plant.

The millions spent for research by the electronics industry will ultimately mean that our industry's sales and revenues will grow from its present annual total of $13 billion to more than double that amount by 1966 or 1967, for this research will produce, besides the communications devices mentioned, such things as radar steering for automobiles, anti-collision devices, electronically-activated brakes, and countless electronic gadgets for the home.

From a speech before the Great Lakes Industrial Development Council

THEODORE V. HOUSER, *retired chairman of the board, Sears, Roebuck & Company.*

Two-Way Inflation

High on the list of major economic problems facing the country is that of continued economic growth, but without inflation. A look at the three recessions since World War II shows that

the Right Combination...

QUALITY

"the CHALLENGER"
$397.50 complete
1500 lb. capacity
Model 1056—Battery operated

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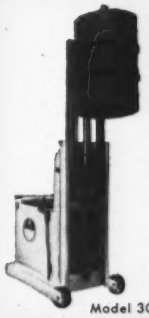

"the DRUM HANDLER"
$890.00 complete
1000 lb. capacity
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SELECTION

"the TELESCOPIC 99"
$699.00 complete
1000 lb. capacity
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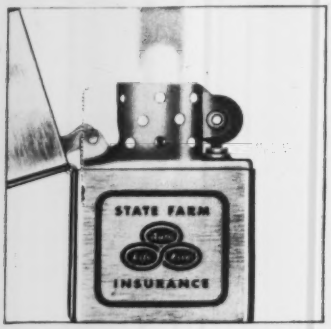
How the Zippo lighter can work for your business 24 hours a day

The world's most dependable lighter promotes customer relations – spurs incentive programs – implements safety programs – and keeps company names in the public eye.



Zippo lighters have the most uncompromising guarantee in the annals of American business. Regardless of age or condition a Zippo is guaranteed to work as long as you have it or *we fix it free!*

Here are a few examples of how Zippo lighters have helped businesses like your own.

1. **Leading manufacturer of hand tools** uses Zippos to maintain one of the best plant safety records in industry.
2. **Blue-chip building products concern** gets suggestion program off to good start by awarding Zippo lighters.
3. **Leading maker of coin-operated music machines** uses Zippo lighters to keep up sales enthusiasm.
4. **Insurance company** reminds prospects of services with never-failing Zippo lighters.
5. **Gasoline station operator** promotes customer loyalty with personalized Zippo lighters.

(Names will be sent upon request.)

Now the world's most dependable lighter in the new Slim-Lighter shape. Here is famous Zippo's new running mate, the new Zippo Slim-Lighter. It was especially designed for those who want a slender, lightweight lighter. The new Slim-Lighter has the same dependable Zippo action.

Facsimile signatures are now available on Zippo lighters. Zippo lighters can now be personalized with individual signatures along with company trade marks or any design you want. For complete information about this service, write to Dept. 39A, Zippo Manufacturing Co., Bradford, Pa.

Zippo Manufacturing Co., Bradford, Pa., and Canada Ltd., Niagara Falls, Ontario

Zippo Manufacturing Company,
Dept. DR 39A, Bradford, Pa.

Gentlemen: Please furnish me with complete information on Zippo lighters and your special design service.

Name _____ **Position** _____

Firm _____

Address _____

over-all economic activity at the bottom of each period was higher than at the peak of the previous recession. While price inflation contributed to this comparison, the observation is essentially correct on constant dollars.

The level we consider at one time to be of peak proportions, at a later date becomes the bottom of a recession, and, even so, the employment challenge makes it necessary.

Those who would, in the name of expanded consumer goods spending, force either wages or taxes to levels which induce inflation or inadequate corporate profits, would certainly find themselves without the means of providing the plant and the working capital to produce and distribute goods in the volume contemplated. And as we can see today, the unemployment problem would not be solved.

Inflation that arises from excess demand can be dealt with by monetary and fiscal measures. But cost-price inflation results from labor's monopoly power to raise wages and prices even in the face of receding demand.

From a speech before the Los Angeles Chamber of Commerce Business Outlook Conference.

ROGER M. BLOUGH, *chairman of the board, United States Steel Corp.*

Steel Costs and Prices

Campaigners keep telling us there is an immediate and inseparable cause and effect connection between steel prices and the cost of living. They claim the higher cost of steel will raise the price of everything from tractors to hairpins.

The fact is that American manufacturers use thousands of different materials, one of which is steel. The fact is also that when the price of any of these materials goes up, the manufacturer's costs go up accordingly. The

fact is further that manufacturers have done a magnificent job of offsetting much of this higher cost. So instead of being passed on to the consumer, these costs have been largely absorbed.

But the most important fact, of course, is that three-quarters of the total value of all products produced represents employment costs. The remaining quarter or less covers the basic cost of all the raw materials, and also pays rental, interest, and dividends.

The effect of a rise in the price of steel—or of any other material—is so insignificant in comparison to the importance of a rise in wage costs that it is not—and never can be—a controlling, or even a dominant, factor in the price of products.

From a speech before the Economic Club of Detroit.

JOHN E. KUSIK, *vice president, The Chesapeake and Ohio Railway Company.*

Why Not Cooperate?

The present organization of production has been a contest between management and workers over how much will be turned out. The conflict goes on as a cold war even in times of freedom from strikes. Losses in times of so-called labor peace are even greater than in times of open conflict. What is wrong, therefore, in seeking a revolution in management and labor relations through organized cooperation?

Aren't there other ways to arrive at other solutions which would enable us to get more work out of the business investment? For example, would not shorter hours and higher pay for the so-called lobster and graveyard shifts make such reorganization possible and economically feasible? Why don't men of management and labor think in terms such as these when discussing higher pay and shorter hours?

It should be the purpose of man-

REMOTE REPLY You can answer intercom calls from across the room—without touching a button!

COMPLETE PRIVACY No one can "listen in" without your knowledge. Chime and signal light announce *every* call.

...only Executone combines BOTH!

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SAVE TIME—get more work done!

Thanks to Executone's "Remote Reply," employees can now answer calls without interrupting their work. You get *instant* response without loss of working time. You eliminate waiting and costly "call backs" when phones are busy. Roving employees are located quicker. You give instructions, get information without delay, yet you have "privacy protection" at all times. Work flows smoothly. Every hour becomes more productive! Executone soon pays for itself in many ways. Ask for full details. No obligation.

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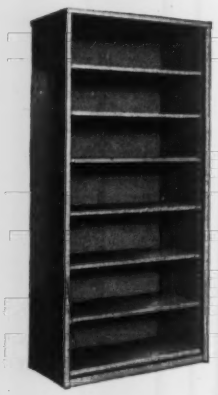
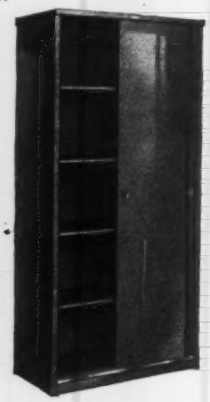
In Canada—331 Bartlett Ave., Toronto

your assurance of excellent value

BORROUGHS
KALAMAZOO amp MICHIGAN

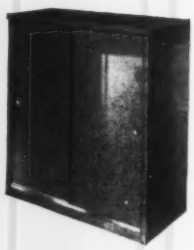
bookcases and supply cabinets





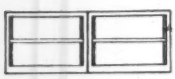
When you see this seal on a bookcase or supply cabinet, you have found everything that contributes to all-round value—outstanding quality, design, features and efficiency, at sensible prices. Borroughs has units from 29" to 84" high—12" and 18" deep—and you may choose from open face units or models with sliding steel, glass or Borite doors. Visit any of Borroughs' 3,500 dealers in the office supply and equipment field, and see these handsome, practical products . . . or . . .

send for catalog



All Borroughs cabinets come in a choice of 4 modern colors—Spring Green, Dark Green, Gray, Fall Tan—in electrostatically baked-on enamel.

All models have sliding shelves that are adjustable without bolting.



These setups show how attractively and efficiently you can arrange Borroughs cabinets—two 29" cabinets side by side—or a 29" x 12" cabinet on top of a 42" x 18" cabinet. Many other combinations can be created to suit your specific requirements.

BORROUGHS MANUFACTURING COMPANY
OF KALAMAZOO
A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT
3064 NORTH BURDICK ST. amp® KALAMAZOO, MICHIGAN

agement to convert the forces of technological development and innovation to stimulate greater productivity. The job of management is to explore continuously all channels of productivity between customers, labor, and owners of capital investment. Labor cannot become more productive without the support of capital and other factors of productivity.

From a speech before the Northern Ohio Personnel and Executive Conference.

BRIG. GEN. DAVID SARNOFF, *chairman, Radio Corporation of America.*

Values in Jeopardy

We should try to understand the nature of education in a totalitarian state, in order that we may not rush blindly into aping it. Science and technology, if cut loose from moral standards and humane restraints, can become monstrosities, as witness the hideous, dehumanized acts of the Nazis and the Communists. Such grim exhibits of the new barbarism armed with technology must stand as eternal warnings in a time when more and more material power is placed in mortal hands.

Certainly we must provide ever larger, more competent contingents of specialists for the tasks of this technological age. Even if the Soviets did not exist, we would still have to meet the burgeoning manpower demands of industry, research, communications, weapons. The Soviet accomplishments along these lines have simply made it more imperative.

But we would be killing the goose that laid the golden egg of our civilization if, in the preoccupation with material progress and power, our institutions of learning retreated from humanism and all it connotes.

From a speech at Brandeis University.

FIGUREWORK PRODUCTION UP

CASH OUTLAY DOWN

• • • when you take advantage of a MARCHANT installment or lease plan

Here are practical, *visible* results of putting Marchant calculators and adding machines to work under your choice of five installment and lease plans:

1. Speedy reduction of your figurework backlog. 2. Shortened output time for your regular figuring day in and day out. 3. New time for needed figuring that you have never been able to get around to. 4. Small initial cash outlay and low monthly payments, both allowing you to save cash reserves for timely use.

You can choose from three "Pay As You Save" plans—monthly payments for 6, 12, or 18 months—to own the machines you need. Or, you can have constant use of machines under a perpetual lease or lease with option to buy.

For information about the Marchant equipment and plan that will give you maximum figurework and cash advantages, call any Marchant office or send the coupon.

AS LITTLE AS $23.75 A MONTH

puts a new Marchant calculator to work for you right away . . . and it's only $18.00 a month for the Marchant 10-key, electric adding machine.

See how typical firms are now using the Marchants they needed, by taking advantage of installment and lease plans

6 MONTHS PLAN

Chosen by a wholesale grocery house when it was ready for two more Marchant ***Figurematic*** calculators to handle the mounting figurework required in serving its growing list of accounts.

12 MONTHS PLAN

A general contractor is buying a Marchant ***Deci-Magic*** under this plan. The model was chosen for its features that make estimating and other complex figurework easier, faster and 100 percent decimal-safe.

18 MONTHS PLAN

Selected by an electrical distributor that wanted another Marchant ***"Twin-Set" Figurematic*** for multiplying items by prices, getting each extension and the accumulated total simultaneously —in a single automatic operation!

PERPETUAL LEASE

(Monthly Rental Payments)

A small manufacturer prefers this means of acquiring a new Marchant ***Figuremaster.*** He has modernized his equipment and at the same time is conserving his limited working capital.

LEASE WITH OPTION TO BUY

(Monthly Payments)

A retail chain has put in 10 Marchant ***Retail Specials*** on this basis, for daily figurework and on-store inventory. ***Retail Specials*** multiply quantity by price, deliver individual or accumulated total ***during actual entry of price.***

12 MONTHS PLAN FOR ADDING MACHINE

This is how a real estate and insurance agency is buying its Marchant Adding Machine to improve customer service and streamline bookkeeping.

MARCHANT CALCULATORS

Division of SMITH-CORONA MARCHANT INC.

OAKLAND 8, CALIFORNIA

Modern Management Counts on Marchant

MARCHANT CALCULATORS, OAKLAND 8, CALIFORNIA

Please send us more information on Marchant's

- ☐ "Pay As You Save" plans (6, 12 and 18 months)
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- ☐ Lease With Option To Buy

H-3

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Hertz takes care of maintenance, licensing, fire, theft, and collision protection. We perform and pay for all repairs, towing, greasing, tire replacement, winterizing, State license plates. We replace destroyed cars, even help you dispose of old cars.

Hertz ends bookkeeping and administrative problems. With Hertz leasing, all your costs are budgetable in advance. All the man-hours of administration and costing are reduced to the writing of one check per month.

Hertz cars improve sales force relations, give greater incentive. New cars maintain company prestige and salesmen's morale, minimize accidents. Car ownership is no longer a job requirement. Mileage reimbursement squabbles are ended.

This free booklet tells how the Hertz Car Leasing Plan can help solve sales car problems that may have dogged your company for years. Write today to H. F. Ryan, Vice Pres., The Hertz Corporation, 224 S. Wabash, Chicago 4, Illinois. Dept. D-3.

Now you can lease Chevrolets (or other brand-new fleet cars) from the Rent-A-Car people . . .

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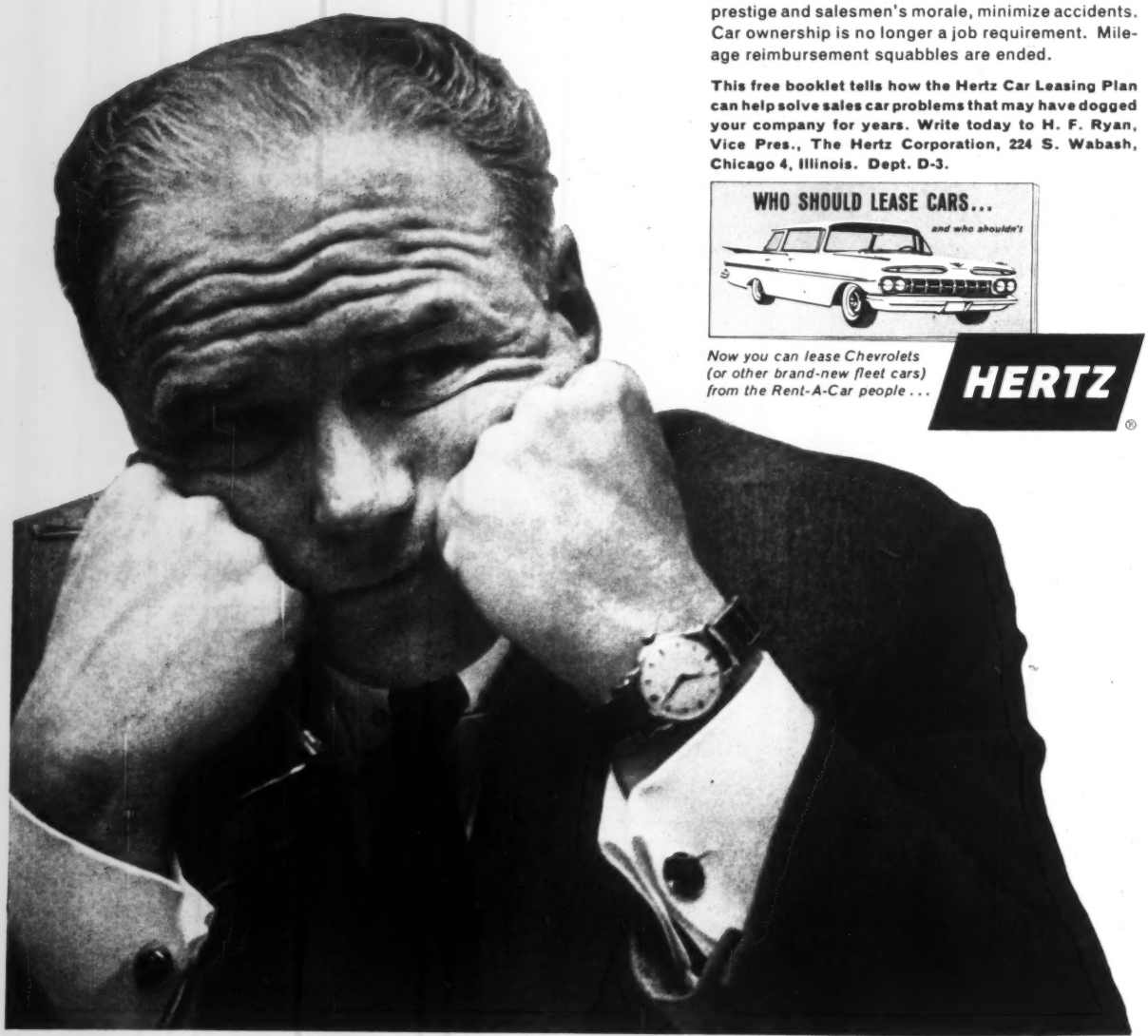

WASHINGTON Business Front

JOSEPH R. SLEVIN

WASHINGTON, D.C. — The U.S. economy normally has a "problem of the year." Sometimes, depending on how business has been doing, there is more than one candidate for the honor.

Last year, people were fretting about the recession. The year before it was tight money and cost-push inflation. This year it's another double-header: inflation and economic growth.

The current talk of inflation isn't new, but the talk about growth is. All the prospects are that economic growth will receive more rather than less attention as time goes on, for there is reason to believe that growth is not just this year's problem. It may be the problem of the next decade.

Soviet Premier Nikita S. Khrushchev is responsible for the attention that growth is getting. The problem has been getting increasingly close scrutiny ever since the 1953–54 recession. But Mr. Khrushchev recently brought it front and center by announcing a seven-year economic development program that calls for boosting Russian output at a pace of 9 per cent a year. That set people to thinking.

Setting sights for growth

U.S. production has risen almost 4 per cent a year since World War II, but the rate has slowed to less than 2 per cent in the last four years. They weren't four typical years—or at least it's hoped that they weren't typical—for they came hard on the heels of the big Korean War expansion and covered two of the three postwar recessions. Output is expected to jump 6 per cent or more this year and then to climb another 4–5 per cent in 1960 as the United States moves back toward full employment.

The best guess of Government experts is that the U.S. growth rate will flatten out at an annual pace of 3 per cent in the years ahead. But they can't be sure that the performance of the last four years won't be repeated. And they can't be sure that growth at 3 per cent—or at any other rate—will be adequate. These are nagging worries, and they have heightened the impact of the Khrushchev boast.

The Democrats' big stick

The growth problem is a ready-made issue for Congressional Democrats, and they are preparing to make the most of it. Some are genuinely concerned about the fundamental questions that have the experts disturbed. Others are looking only for a stick they can use to belabor the Eisenhower Administration. The Congressional Joint Economic Committee already has begun to dig into the question. There's better than an even chance that growth rather than inflation will become the central concern of the national economic investigation which Senate Majority Leader Lyndon B. Johnson is pushing as one of the major activities of the 86th Congress.

The immediate domestic question is whether the economy is growing rapidly enough to provide jobs for the unemployed. Commissioner of Labor Statistics Ewan Clague says 2 million new jobs must be provided this year if unemployment is to be cut to 3 million. While Clague doesn't come right out and say so, it's plain that he doesn't think the jobs will be found.

The price of full employment

Whether or not the jobs *should* be found is another question and one about which the experts disagree. Many economists believe too high a price would have to be paid for quick absorption of the unemployed. They believe that severe inflationary pressures would be created and that dangerous maladjustments would be built into the economy.

Both the short-term job issue and the long-term growth problem mesh easily with the broadening Democratic attack upon the Eisenhower budget. The President wants the Federal Government to do less, and the Democrats want it to do more. He is giving top priority to halting inflation and to balancing the Government's books. They would subordinate the budget to having the Government meet what they consider to be essential domestic and foreign spending requirements. The battle of the budget still is developing, and the dimensions of the disagreement between the two major parties become clearer week by week.

Heading toward a standstill?

Very little is known about what makes the American economy grow, and that is one of the things that the economists are going to examine. Until now, growing has been something that the United States has done naturally. Growth has been considered an inevitable consequence of turning energetic people loose in a wealthy country. Economists long have believed that growth slows as a country becomes more developed, and that theory has been widely offered as an explanation of why the United States now is growing so much more slowly than the Soviet Union.

It's too early to tell where the studies of growth will lead, but it's not too early to see that profound issues of national economic policy are about to be raised. Today's questions and investigations become tomorrow's laws. A number of courses can be adopted if eventually it is decided that the United States must grow faster.

continued on page 36

DANGERS of launching a NEW PRODUCT

Snell Research can help overcome them

Here's how, in some typical case histories of Snell clients:

Product Research and Development—A few years ago Snell was retained to develop new products, applications, and markets for sugar. Extensive research and development work by Snell resulted in the creation of a new synthetic detergent—based on *sugar!*

Product Application—A Snell client in the paper industry, for whom we had developed a fine additive, wanted to explore uses in other fields. Unfortunately, their highly qualified staff's experience was limited to the one field. Snell, with experts in practically every product field, found the new product has potentialities as both a good emulsifier and a paint plasticizer. Only the very largest manufacturing companies can duplicate the breadth of experience and background the Snell "brain-trust" of technical experts can offer you!

Product Improvement—One Snell client found their product, an adhesive bandage, slipping in quality. Tape was going gooey in storage on druggists' shelves. Snell research helped this client bring his product quality up to equal the best on the market, and retain his share of sales.

Product Evaluation—A Snell brewery client wanted to expand production and take advantage of a more efficient production technique but feared the taste of the beer might suffer. Snell food technologists, taste panels, and engineers checked the new process and hundreds of samples of beer made under new and old systems, recommended the switch to the more profitable modern process. The change went unnoticed by the customers, and sales continued to climb.

Market Research—A Snell client with a waste product had briefly considered building a plant to use it to manufacture another product; but had given up after their own brief survey showed the new product to be already overproduced. When they consulted Snell for checking, however, Snell predicted there would be a shortage within three years. The client waited two years, built the plant—and now has a profitable new product instead of a waste!

Toxicology—One of the largest frozen food companies began getting complaints on the flavor of one of their green vegetables. Since hundreds of thousands of dollars were at stake, they consulted Snell to find out what was wrong. Snell by analyzing tests, and checking on the farm, was able to prove that the taste—actually toxic—was due to a new type of insecticide sprayed on the fields hundreds of yards away on a windy day long before the harvest!

Engineering—A large midwestern firm desired to produce its own brand of instant coffee, to possess outstanding flavor, body, and bouquet. They engaged Snell to handle all details, from design to engineering, to supervision of actual process startup. The fine qualities "built into" this resultant product made it such a success that Snell was commissioned to enlarge the plant, which has recently gone into production.

What's Your Product Problem?—Whatever it is, and whatever your product field—chemicals, chemical specialties, personal products, pulp and paper, protective coatings, plastics, textiles, foods, petroleum, rubber—Snell has men who "know the score" in that field, and who can work with you creatively and profitably in developing, producing, protecting, and marketing new ideas. This broad experience can be decisive in protecting not only your ideas, but also the thousands of dollars you spend developing them. And the cost of Snell service is less than you might imagine! Half the jobs we do cost less than $1000!

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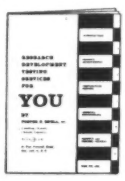


FDS **SNELL**

New York, N. Y.
Baltimore, Md.
Bainbridge, N. Y.
Worcester, Mass.

Business spokesmen contend that the best way to make the economy expand is to enhance individual and business incentives by cutting taxes. They want lower individual and corporate income rates, and they want more generous depreciation allowances.

Labor representatives disagree. They urge that expansion be spurred by increasing consumption. They believe that buying power should be strengthened by raising wages and by cutting excise and lower-bracket individual income levies.

Business men say greater investment will create incomes and bolster buying power. Labor says heavier consumption will create the sales that will make business men purchase additional plant and equipment.

Uncle Sam's share

These are not the only remedies put forward by business and labor, and the proposals for stimulating economic activity don't stop with these two groups.

Mr. Eisenhower is a firm supporter of the business view that lower taxes will provide needed incentives, and he still hopes that he will be able to balance the budget and recommend a tax cut before he leaves the White House in January 1961.

An increasingly large number of Democrats—and some Republicans—are coming to believe that any budget surplus should be used to expand Federal activities rather than to reduce taxes. They are of a school that maintains that heavier Federal spending not only would stimulate growth, but would assure that essential national needs will be met.

What they are saying is that growth is important—but it's equally important to be sure that you're growing in the right direction. They would have the Government spend more for defense, foreign aid, schools, hospitals, roads, and other public facilities and would leave the consumer with less to spend for luxury goods such as outsized automobiles and elaborate appliances. They believe that this is the way to win the cold war and to persuade the underdeveloped countries to embrace democracy rather than communism.

The proposals for increased Government spending are a manifestation of a belief that the United States can win only if it denies itself some comforts and channels a larger portion of

its resources into investment. Government spending diverts resources into one type of investment. Tax incentives for business attract resources into another type: the plant and machinery base that must be expanded if the United States is to achieve large year-to-year increases in production.

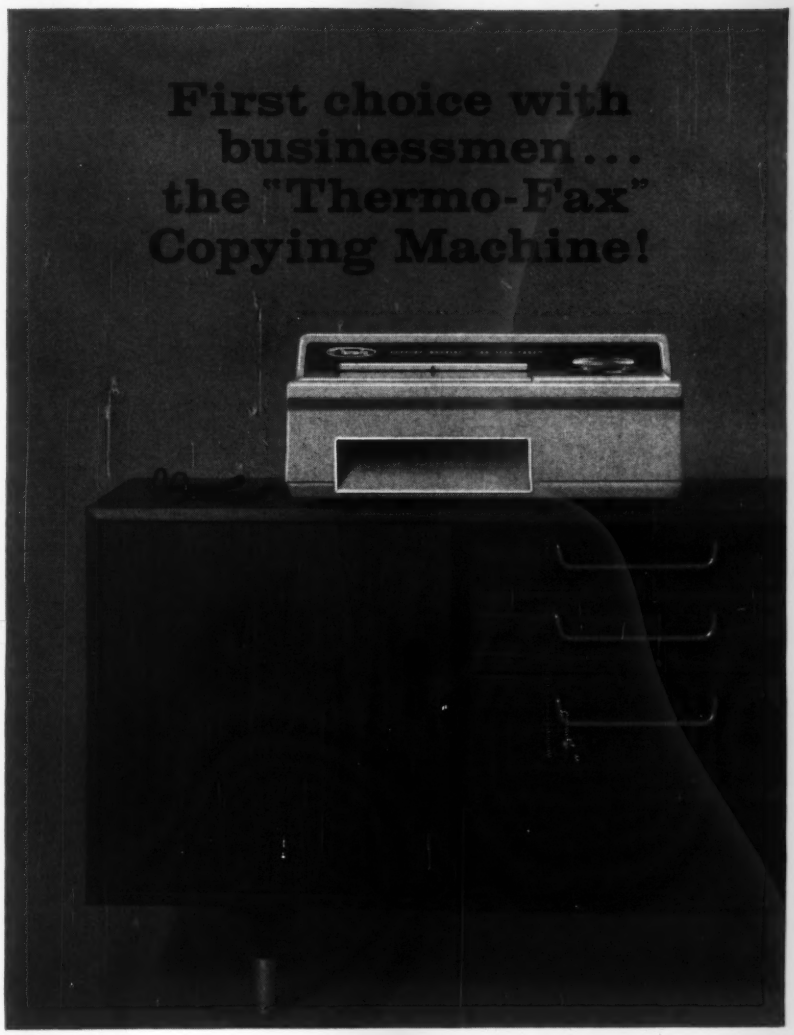
The United States is competing against a controlled one-party state, and an increasingly impressive body of opinion holds that it cannot compete successfully if it lets the marketplace pressures of consumer and business demands continue to determine investment policy to the same degree that they do today.

The Soviet Union obtains huge increases in capacity in selected, critical heavy industries by allocating manpower and materials to those industries at the expense of others. Russian consumers always have been given the short end of the stick, and they are getting it again in the new seven-year plan. Production of heavy industrial goods is to be boosted 85–88 per cent by 1965, but output of consumer goods is to rise only 62–65 per cent—and American experts think that percentage will eventually be cut.

A shift of emphasis

Those who maintain that the Federal Government must do more to stimulate growth and must channel resources into essential goods may not win out in the end, but their views are becoming more influential. To the extent that their beliefs gain acceptance in the future, there will be a measurable change in Government policy.

But it will be a shift of emphasis. It will not be a break with the past. It will not be a new departure. The granting of rapid amortization privileges has encouraged private companies to pour billions of dollars into facilities that the Administration believes are essential for national defense. The 27.5 per cent tax depletion allowance spurs a continuing search for new minerals resources. The Government will spend a record peacetime total of just under $81 billion this year, including $40.8 billion for national defense and $3.9 billion for mutual security, as well as substantial sums for atomic energy, hydroelectric power, public office buildings, and other projects. Government grants, subsidies, credits, and loan guarantees stimulate the construction of hospitals, roads, homes, ships, airports, and many other facilities. END



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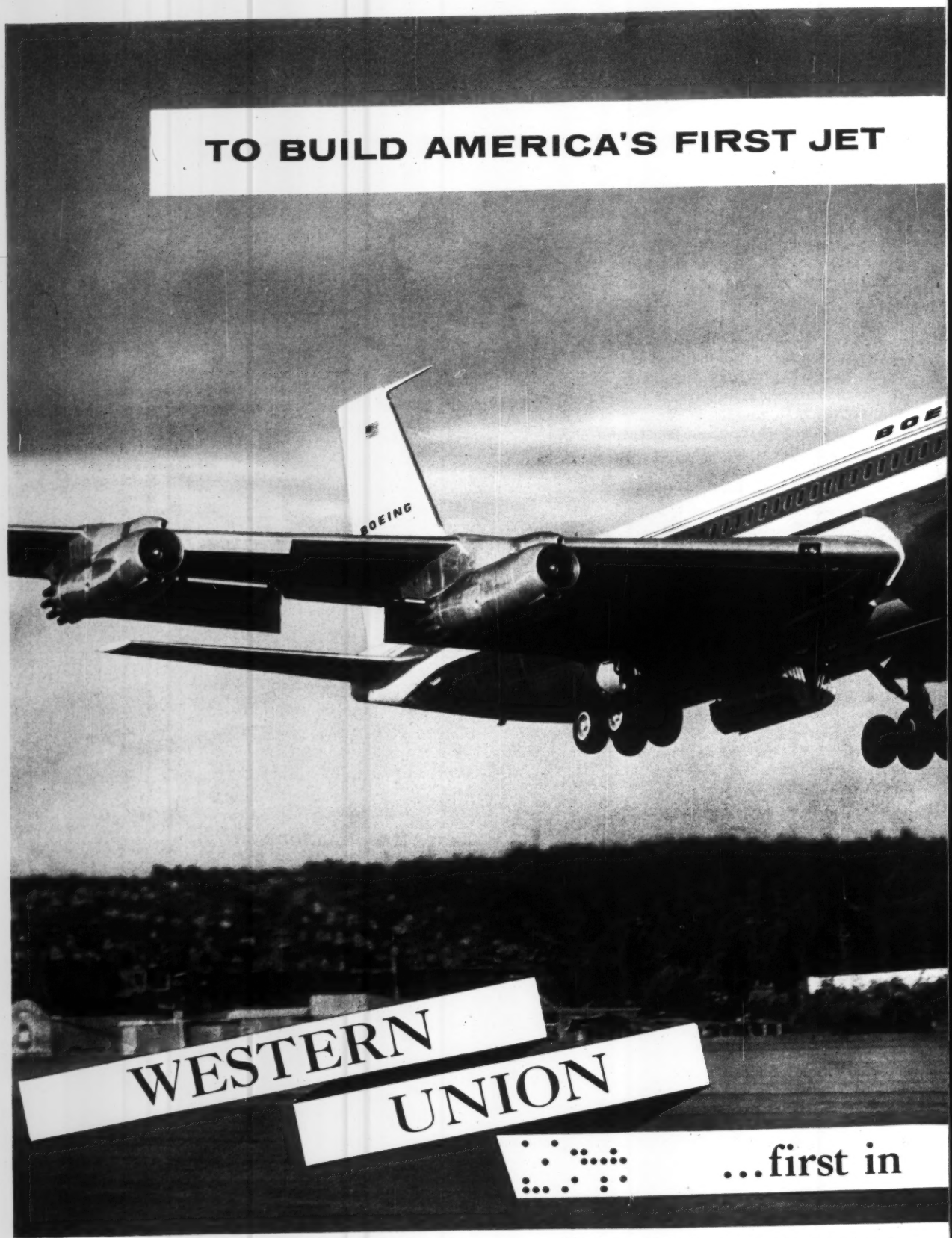
TO BUILD AMERICA'S FIRST JET
BOEING
WESTERN UNION
...first in

AIRLINER AHEAD OF SCHEDULE

START WITH WESTERN UNION

How Boeing uses 12,823 miles of private wire circuits to break research and production records

To produce the 707 Jetliner, Boeing once again turned to its extensive Western Union Private Wire System to speed communications between widely dispersed facilities. Regardless of location, every unit of Boeing, including subcontractors, has been welded into one custom-designed communications network.

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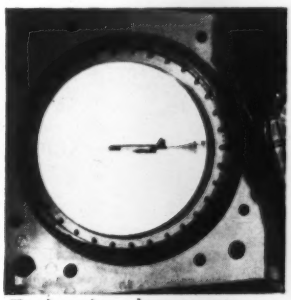
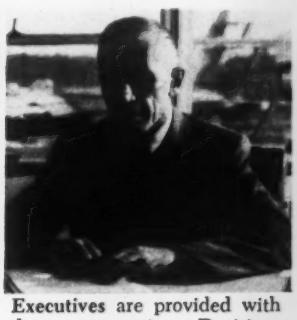
Switching Center is the "heart" of Boeing's private wire system. Records are kept of all messages while traffic is directed.

Subcontractors are contacted on problems. This means a closer working relationship that approaches inplant facilities.

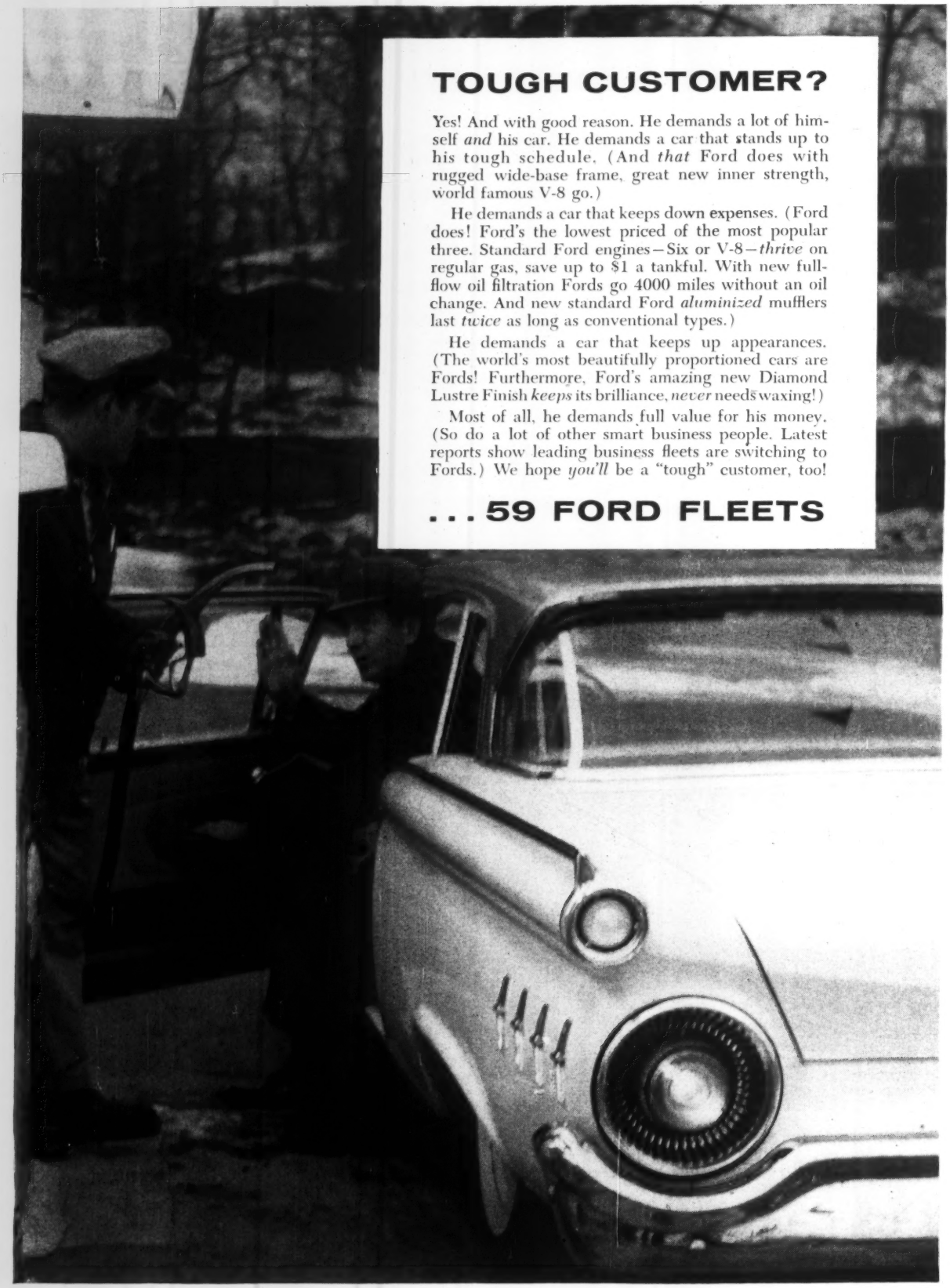


Engineering departments are linked to testing and development labs. Answers to all problems are transmitted instantly.



Executives are provided with data on operations. Decisions become surer, swifter, via Western Union Private Wires.

PRIVATE WIRE SYSTEMS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Yes! And with good reason. He demands a lot of himself *and* his car. He demands a car that stands up to his tough schedule. (And *that* Ford does with rugged wide-base frame, great new inner strength, world famous V-8 go.)
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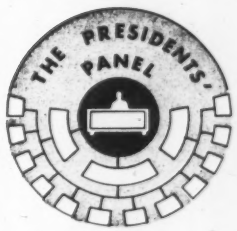
He demands a car that keeps up appearances. (The world's most beautifully proportioned cars are Fords! Furthermore, Ford's amazing new Diamond Lustre Finish *keeps* its brilliance, *never* needs waxing!)
Most of all, he demands full value for his money. (So do a lot of other smart business people. Latest reports show leading business fleets are switching to Fords.) We hope *you'll* be a "tough" customer, too!
. . . 59 FORD FLEETS

Does Big Business Breed Conformity?



REPORT NO. 11

Is the "organization man" guilty as charged? Here's the considered verdict of DR&MI's panel of top company presidents, who set the organizational climate for a sizable segment of U.S. industry.

"WE ARE breeding a race of frightened men, of payroll cowards guided by their associates' approval. This is a death sentence for bold and energetic thinking." So says, in effect, one out of every five men in a distinguished group of chief executives viewing the problems of individualism vs. conformity in business.

How strong are the pressures for conformity in big companies? Is the "organization man" a sociologist's fiction or a dominant force in our society? Is traditional American individualism—and, more specifically, vital executive initiative—in serious danger of extinction?

To explore top management's views on this subject, which has profound implications inside and outside business, DR&MI has just completed a survey of its regular 160 Presidents' Panel members—three out of four of them heads of companies among the 500 largest U.S. industrials.

Cause for alarm?

One in five of the presidents sees a very real danger that as a corporation grows and its internal organization becomes more complex, management personnel at every level tend to become submerged as individuals and reduced to playing the role of "yes men." But seven in ten company chiefs believe that the "organization man" does not exist in their companies or, if conceding that he does exist to some degree, regard him without alarm.

There is a current tendency, some of these men observe, to adopt new nomenclature for some rather old and familiar human phenomena and to confuse a change in labeling with a change in product. The "organization man," they say, is just a fashionable catchword title for the type of individual who always has and always will exist—the man who prefers to have others do his thinking. As people multiply and institutions grow bigger and more complex, they argue, there will naturally be more such men around.

A substantial number of presidents who acknowledge the existence of the conformist in the organization believe he is largely confined to the lower echelons of management and that the true individualists gravitate to executive positions. There is a widespread conviction that the man who never sticks his neck out and is afraid to say anything but "yes" is soon out of the running for top management responsibilities. One top executive says it is "successful individualism" that attracts attention and is promoted. "The stronger individuals will always rise above their environment." Another man points out, typically: "From my observation over the years, there is always a small percentage of the executive group in any company who have built-in initiative and will not conform to the 'organization man' pattern, regardless of the industrial environment. Those who conform would probably do so under any circumstances."

The guise of conformity

Where conformity appears to exist among top management men, one president notes shrewdly, it may be little more than a convenient mask. "People capable of leadership do not confuse appearance and substance. Hence, they may conform in routine matters to minimize waste motion and save their nonconformity for areas that really matter. A good executive has a pride of individualism and ac-

Do Polls and Surveys Sway Opinion?

TO WHAT EXTENT, if any, do national opinion polls, business surveys, TV ratings, and the like themselves sway public and business opinion and encourage conformity?

Few presidents on the DR&MI Panel—a scant 3 per cent—think that surveys have no effect on opinion. On the other hand, those who see some influence rarely regard it with alarm.

Public opinion tallies are more often seen as a symptom than as a cause of majority conformity. Some presidents say polls may give a popular opinion national sanction and psychological appeal, but the effects are neither deep nor long.

But industrial leaders consider themselves much less easily influenced than the general public by polls and surveys. While opinion and fact polling may somewhat encourage imitative management and standardized decision patterns, it is inevitable that decisions made from the same factual base will be similar, they say.

They worry a good deal more that the picture of the business world presented to the public in entertainment media is giving the public a distorted view of executive morality.

Slightly	**38%**
Moderately	**25%**
Considerably	**23%**
Not at all	**3%**
No opinion	**11%**

complishment that will not submit to being strictly an 'organization man.'"

But far more presidents believe that "a happy mixture" of individualism and conformity makes the most capable executive. Typical of this view is this man's comment:

Our modern business and industrial life is so much more complex than in any previous period of our economic history that the complete rugged individualist has become almost an anachronism. Modern management needs the 'organization man,' but it does not require the type of faceless 'organization man' who lacks the imagination, the curiosity, and the initiative to play a vital part in promoting successful competitive growth. Without the crossbreeding of the 'organization man' and the individualist, we might soon be faced with a form of corporate socialism, with consequent stifling of the incentive for individual enthusiasm and initiative.

The key executive who takes the company view, who can collate information, and who can build an effective working group out of diverse personalities and skills does not deserve the implied criticism that goes with the "organization man" label, many presidents say. They argue that the executive is no less an individual today simply because the bigness of the organization makes it necessary for him to base his decisions on facts supplied by many sources. He still retains his initiative and his decision-making ability.

One president sums up the reasoning behind this consensus view this way:

The business environment in which we live today is vastly different from that of 25 years ago. Prior to that time, there was no Securities and Exchange Commission Act, there was no National Labor Relations Act, there was no Taft-Hartley Law, there was no Robinson-Patman Act. In the intervening period, there have been a host of new laws, court decisions, and rules and regulations of administrative agencies, which govern business conduct today. As a result of these factors and other circumstances, uniform company-wide policies have become a virtual necessity, and, as a further result, individual executives must operate and administer within the framework of such policies lest the company be in a hazardous legal position, which would inevitably result if executives set policies based on their own interpretation or lack of information on legal requirements.

Furthermore, within the last 25 years, companies have had to contend with widespread unionization, which cannot be satisfactorily handled in multiplant operations according to the ideas of an individual plant manager or a local personnel department. Large customers operating nationally through many divisions or branches have become more important in the scheme of things and so, too, require a uniform policy. Undoubtedly, all of these things have contributed toward less scope for individual action on the part of lower levels of management, but have increased the problems of higher echelons, thereby necessitating a caliber of management that has initiative and the ability to think broadly.

An "organization man's" rebuttal

In reply to the thesis presented by William H. Whyte in his best-seller *The Organization Man* that there is a pressure for conformity in big business today which may ultimately spell the end of American individualism and business initiative, another president says:

Whyte draws attention to certain dangers confronting individual personality in large-scale organizations. Clearly, however, his case is overworked. Perhaps he intended it to be. He was out to make an issue and so was inclined to select his evidence accordingly. I think there is a tendency to conformity in large organizations, but I do not think it is serious. In such an organization, there must necessarily be wide participation in any decision. Indeed, it is sometimes difficult to say exactly where the decision is made, because, when the matter reaches top management, it is in the form of recommendations based on a certain selection of material and a certain arrangement of the case that are themselves of a decision-making nature.

At every stage, too, the process involves consultation and conference. At every one of these stages, the individuals concerned will be of varying aggressiveness. The larger the organization, the more likelihood there is that in this process the more rugged individualist will be tamed to use the arts of persuasion rather than those of domination. Whether or not this is to be regarded as a threat to individuality is, however, another matter. It seems to me it depends on whose individuality you have in mind—the rugged individualist, or those dominated by him.

This growing trend toward management by committee and conference has also been cited as a reason for conformity in executive thinking. Some management authorities are now saying that this group decision making has gone too far in industry—that several minds are not necessarily better than one, and that groups are often less efficient than individual executive action.

Among the DR&MI Panel execu-

AMONG THE DR&MI PANEL MEMBERS ARE THE PRESIDENTS WHOSE PICTURES APPEAR ON THESE PAGES.

E. Weldon Schumacher
American Optical Co.

Fred L. Riggin, Sr.
Mueller Brass Co., Inc.

Charles S. Bridges
Libby, McNeill & Libby

W. L. Wearly
Joy Manufacturing Co.

Austin R. Zender
Bridgeport Brass Co.

Should Company Executives Be Public Leaders?

Companies that expect their executives to be active in such outside activities as civic and community affairs, charity, and politics are clearly in the majority. In fact, 86 per cent of the presidents on the DR&MI Panel report that they expect company executives to extend their leadership outside the company. Many point out that while such activities are entirely voluntary, they are encouraged.

Presidents consider that political activity among executives is becoming increasingly important. Some believe this is necessary to counteract labor's political activity, while others state it is merely an obligation of citizenship. But many more stress that business has a stake in politics that needs protecting: "If business neglects politics, politics will neglect business," one president states. A few presidents, however, rule politics out as too divisive or controversial. (For another view, see interview with Vice President Nixon on page 147.)

Private clubs and public charity are not considered so important to the company as are civic and community affairs, where altruism and responsibility, along with more practical motives, are cited. Many presidents believe that community leadership contributes importantly to an executive's self-development and growth. And others value such activity for its contacts or for the company's prestige.

But while most company presidents say that they think outside activities are desirable, they add that the decision as to the type of activity is left to the individual executive.

As one president sums up the common view, "It is more important that the individual executive participate actively in those groups he feels to be most worthwhile."

tives there is a remarkable likeness of view on this aspect of the current business environment. The committee, they agree, is useful in developing all aspects of a problem, in obtaining information and recommendations (particularly from specialists), in communicating the decision factors, and in gaining support for the final decision. But the decision itself, say the presidents, cannot be delegated to the group; it must remain the sole responsibility of one fully accountable top executive.

The president must decide

If the president, or some other accountable executive, uses a committee or conference to make decisions that he should make himself, say the panelists, he evades, dilutes, or actually surrenders his own responsibility. But, add most of the presidents, if he did not confer or listen to a fact-gathering and advisory board, he would run the greater risk of making ill-informed and less reliable decisions.

Presidents were asked to what degree they regarded themselves as "organization men" as contrasted with "rugged individualists"—and whether they had changed in this regard during their business lives. Admittedly, both terms have unpleasant connotations. And few men willingly classify themselves in either category without offering some definition or qualification. Yet, the self-appraisals indicate that about one in ten men regards himself as an out-and-out individualist; about three in ten consider themselves "organization men"; and the balance—six out of ten—see themselves as a varying blend of the more typical qualities implied in each extreme. For the few who say they have changed in one direction or the other during their business careers, they admit three-to-two that they have become more organization-minded since becoming president. A good many more, regardless of their self-appraisal, say they have always been the kind of men they are today.

Of the presidents who regard themselves as "organization men," most attribute to this personality qualities rather different — and considerably more desirable — than the stereotype implies. Being an "organization man" to these men often means that they are concerned most with getting the right people in the right place and encouraging them to produce results, but it also means that they do not surrender their right to express their thoughts fully and forcefully. Nowhere, among this group, is there any mention of discomfort, frustration, or abrogation of leadership. One man forcefully states his "conviction that consideration for my associates is preferable to the cultivation of my ego, which is what most of this rugged individualism amounts to." The self-described "organization man" views himself as selfless—but far from faceless or mindless.

Tough but tactful

From the few men who describe themselves as clear-cut individualists come comments like this: "Experience has repeatedly strengthened my conviction that it is more important to make the right decision than the popular decision." The forthright individualists ascribe to themselves, too, a high degree of provocative inquisitiveness: "I find myself constantly wanting to challenge things the organization seems to take for granted." But some of the individualists admit that they have adapted their techniques, if not their basic personalities, to the organization: "I feel now that I am the same individualist I was years ago, except that now I wear the kid gloves of diplomacy and tact."

But the majority of company presidents regard themselves as a blend

continued on page 149

Joseph S. Young
Lehigh Portland Cement Co.

Donald B. Tansill
M. Lowenstein & Sons, Inc.

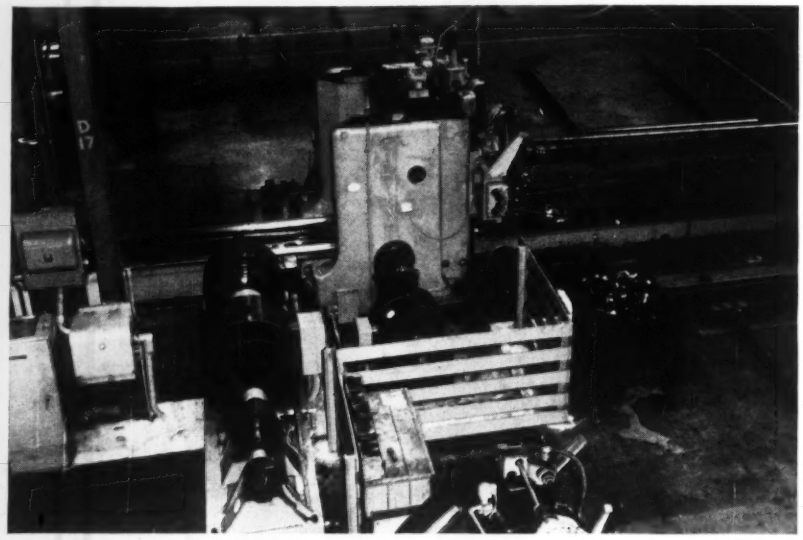
Ralph K. Gottshall
Atlas Powder Co.

T. Spencer Shore
The Eagle-Picher Co.

John R. Dow
Interstate Bakeries Corporation

Thomas M. Ware
International Mineral & Chemical Corporation

Today's used machinery market is a useful medium for quick disposal of surplus equipment, a fast supplier of urgent needs, and a frequent solution to capital budget problems.



FROG AND SWITCH PLANER, *purchased used in 1956 for $60,000 (half the original price), turns out rail sections at American Brake Shoe Company's Buffalo, N. Y., plant. It typifies the kind of large, heavy-duty machine available on the used market.*

Buying and Selling Used Equipment

ART ZUCKERMAN

IT WAS a glum factory manager who scanned his now-motionless pride and joy, a fully automated assembly line that turned out tops for electronic condensers. Built for a long-term Government contract, it had been stilled by a Washington economy wave. Now the unit was worth its weight in scrap, for scrap it would become before competitors would be allowed to buy it and its secrets.

As a last resort, the factory manager called a used machinery dealer and outlined his problem. The dealer had a suggestion: let the factory dismantle the unit to preserve all proprietary secrets, and he would buy the components for resale. Thus the company managed to cushion what could have been a considerable loss.

Some 2,500 miles away, a conventional assembly line in a much smaller plant was turning out 250-gallon heating tanks to fill an important contract. Suddenly the line stopped when a key unit, a bending roll machine, broke down. Delivery of a new unit would take several months, far too long to meet the contract deadline.

The company's president and his production chief pored over some brochures recently received from used machinery dealers. One listed the exact item needed. A quick phone call set up a date to inspect the machine. Within three days of their order, the factory executives had the machine in their shop and an assembly line once more in full swing.

A problem of still a different nature confronted a third plant superintendent. He urgently needed eight units of a certain machine tool and could have used ten to meet his production schedule. But it had been a bad year for the company. All it could spare was $125,000, enough for only five units at new-machine quotations.

Before spending the money, the plant superintendent called some local used machinery dealers and felt them out. In no time at all, he had purchased ten used machines in excellent condition and was able to return part of the $125,000 appropriation to his astonished company treasurer.

Incidents of this sort are an everyday occurrence in the used machinery and machine tools markets. The used markets provide a means for quick disposal of equipment that is either surplus or slated for replacement by newer, more efficient production tools while, at the same time, they supply capital that can be applied to retooling. They also offer a solution to emergency equipment needs and resolve many problems created by a shortage of funds.

Used machinery dealers have been called midwives to small industry. They have made possible the birth of many companies that could never have raised the capital needed to buy new equipment.

For example, in New York, two men developed and patented a novel air cylinder but lacked funds to go into production. They shopped the used machinery market, bought a few inexpensive, older machines, and started taking small orders. As the business grew, they traded in their inefficient old equipment for later-model used machinery. They expanded their product line. This process of trading up and adding on continued until today the company employs 350 workers, has an up-to-date plant, and is busily turning out jet-assist-takeoff

units on contract to the U.S. Air Force.

Today, used industrial machinery has achieved an acceptance it never knew before World War II.

"They used to say, 'Don't buy used if you don't want to get stuck,'" recalls a veteran purchasing executive for one of the country's largest electronics and home appliance manufacturers. "Today you can buy in the used market with confidence."

Out of the bargain basement

Dealers in used machines have been on the scene since at least the turn of the century, but it took World War I to make them any kind of an industrial factor. Between the two great wars, the majority operated in a bargain-basement atmosphere. World War II brought fundamental changes.

The Government set up many plants of its own and bought production equipment for hordes of contractors. At the war's end, thousands of these nearly new machines were unloaded.

Used machinery dealers snapped this equipment up, and the nation's industrial complex, eager to retool and fill peacetime demands, supplied a ready market. But enough equipment was available to create extremely lively competition among the dealers.

Most dealers found it necessary to adopt the selling methods of the capital goods manufacturer and leave the bargain-basement atmosphere behind. Many dimly lit, dusty sheds were replaced by clean, well-illuminated showrooms. In place of a dash of paint to pretty up a worn unit, dealers substituted excellent, close-tolerance rebuilding, backed by iron-clad guarantees and crack service departments.

Some used machinery dealers had always provided this kind of service, but now it was the rule instead of the exception. Production managers found they could buy used equipment with tolerances and serviceability as good as new. It was a lesson they retained.

There are many kinds of machinery on the used market, but machine tools and machinery for processing and chemical applications are the most numerous and significant. The used chemical and process equipment industry rests in a relatively small number of hands, some twelve dealers of substance and perhaps 30 lesser dealers. Most of them are concentrated in the New York-New Jersey metropolitan area, but some are located in the Midwest, the Southwest, and the Far West.

Machine dealers unite

Used machine tools are handled by a considerably larger number of dealers. In addition to some 250 commission brokers, there are about 500 stocking dealers, concentrated in major cities around the country. Approximately 225 of these stocking dealers —representing some 80 per cent of used machine tools sales—are organized into the Machinery Dealers National Association. This trade group has helped to make far-reaching changes in the industry.

One of its prime services is a membership directory mailed from its Washington, D.C., headquarters upon request. Far more important is the code of ethics to which its members subscribe. Among other things, this code obligates member dealers to grant 30-day guarantees, represent of-

continued on page 143

When Buying Used Equipment

- **First thoroughly investigate cost, availability, and production rates of new equipment.**
- **Consider reliability and productivity as well as price.**
- **Buy from reputable dealers who guarantee their machinery.**
- **Make sure the manufacturer is still in business; get the unit's serial number, and check the manufacturer on its age and parts availability.**
- **Make sure motors, drives, and speeds conform to manufacturer's recommendations.**
- **Check the unit's completeness and accessories offered with it.**
- **Give the machine a thorough technical inspection; where great accuracy is required, solicit the aid of the manufacturer's technical representative.**
- **Where possible, test the machine under power before taking delivery.**
- **Think twice about a machine whose type is in high demand if it has been offered for an unduly long period of time.**
- **Be certain the machine's power requirements match your power supply.**
- **Where more than one type will do the job, consider the alternatives.**
- **Make sure responsibility for rigging and loading is fixed; if you assume it, be certain to get an accurate estimate of costs.**
- **Always include in your purchase order the machine's serial number and a statement making acceptance of the machine contingent on its being received as inspected, loaded, blocked, and accepted by the carrier for shipment, and that the seller has free and clear title to it.**

REBUILDING DEPARTMENT *of Botwinik Bros., Inc., New Haven, Conn., restores used machines to new-machine tolerances. Such specialists rebuild for their own used sales departments and for other dealers and factories that want to refurbish equipment.*

SUN'S MANAGEMENT COMMITTEE *reviews architect's plans for new plant expansions at a regular weekly evening meeting. Left to right: E. V. Ladd, Jr., assistant secretary; J. S. Thome, vice president, graphic arts group; J. E. Spector, vice president, paints and finishes group; E. N. Blackstead, vice president, chemical group; Norman E. Alexander, president; S. Z. Krinsly, secretary; M. J. Hoover, administrative vice president; J. J. Craig, treasurer.*

Building a Profit-Minded Middle Management

NORMAN E. ALEXANDER, *President, Sun Chemical Corp.*

Sun Chemical's plan for achieving flexible, highly autonomous operation of its diversified divisions offers some helpful clues for any management seeking to tie executive progress to company profits.

NO COMMODITY is in greater demand today by American industry than profit-oriented middle management. The need has been made acute by the unprecedented postwar growth of most companies and the major mergers which are continuing at the rate of more than a thousand a year.

Many companies need to replace the aggressive division-level managers who have retired, died, or been promoted without leaving mature profit-generators to take their place.

Small, medium-size, and large business concerns share the same problem and are in competition for the available management talent. With giant corporations recruiting the top of each year's business school graduating class for their scientifically planned training programs, must smaller companies resign themselves to taking "second-best"? Or can small and medium-size businesses still develop a pool of management men with the drive and horse-sense which built America's corporate giants from small, vigorous companies?

Sun Chemical Corporation faced these questions two years ago. Sun at that time had assets of approximately $28 million and annual sales of around $40 million. It had grown in all of the ways common to American industry—first from horizontal mergers, the banding together of a group of ink manufacturers for a larger share of the market; then from vertical mergers reaching back to raw products and moving closer to end products; and, finally, from what might be called "conglomerate" growth to get into promising new markets and to broaden the use of its research, experience, and facilities.

The company had diverse lines, most of them with a good growth potential—such as printing inks, machinery for special uses in the printing and lithographing industry, organic pigments, specialty waxes, textile chemicals, electrical insulations, paper and fabric coatings, paints, finishes, and waterproofing and maintenance products.

Sun also had many other things in common with growing companies. At first, it had the benefit of the profit-minded, decision-making former owners of the several operating divisions who continued to manage them as in-

dividual divisions in the first years after their merger into the parent company. Then, as these men disappeared, management became highly centralized.

Under such a system, there is no way to measure current operations except by past performance. Markets can grow by leaps and bounds while company sales in the same areas show only moderate increases. In many instances, opportunities multiply while sales volume remains static and costs increase. The easiest reaction in such cases is to attempt economies. Management payrolls shrink; services are curtailed; research is abandoned; expenditures for development of products, facilities, and men are eliminated. Such savings can make a balance sheet look good for the moment, but collapse is inevitable.

Powering the profit drive

Of course, this is the extreme of centralization. But, in 1957, Sun Chemical's new top management decided decentralization was the wiser course. It hammered away steadily at one basic problem: How could the company again obtain the same profit drive and operating flexibility in its divisions that they had enjoyed as small, well-managed companies?

A complete change in middle management thinking and functions was effected without anyone's feeling that new rules were being forced on him from the top. While the metamorphosis is difficult to describe, some of the methods used and the results achieved may interest other companies, large and small, who face similar problems.

Before deciding whether the company's operations should be centralized or decentralized, Sun executives considered the pros and cons of both systems. They asked, for example, "What advantages do the managers of small companies have that the company division manager frequently lacks?" The answer was clear: complete responsibility for operating results; intimate knowledge of customers, suppliers, personnel, and operating problems; full respect from both subordinates and superiors; flexibility to adjust to changing conditions; and *incentive to do the job.*

Then management asked itself, "What advantages do managers of successful, highly-centralized companies have?" The answer seemed to be specialized training under a carefully developed operating formula, the success of which is partly due to accumulated momentum.

Controlled autonomy

On the basis of these findings, Sun chose decentralization with a high degree of autonomy, reinforced with a thorough system of controls. There was nothing altruistic in rebuilding personal ego and authority; it was simply the shortest route to profit and growth.

Once the decision to decentralize became operating policy, developments came to a head simultaneously. General managers, under the Sun program, were designated for each profit center and given responsibility for all operations including product development, manufacturing, sales, technical service, credits and collections, employment and training, and capital investment. This responsibility was limited only by basic policy as set forth in a corporate policy manual.

Top management sets the course

Three operating vice presidents were named, and each was placed in charge of a group of divisions with a certain affinity in markets, manufacturing, or product development. These operating vice presidents, together with the president, administrative vice president, treasurer, secretary, and assistant secretary, form a management committee which sets policy, administers controls, and provides the flexibility needed in such an organization.

It was found that for certain operations the divisions could get more for their money through joint expenditures than from individual budgeting. These operations included such services as market research, central engineering, industrial relations, tax and insurance administration, and some central purchasing. By contrast, it was found that traffic, routine purchasing, costing, and other services would be more efficiently administered at division levels.

Maintaining the controls

The group vice presidents recognized that certain corporate services were essential to their operations and voluntarily wrote the costs into their operating budgets on a pro-rata basis. As a result, the administrative expense that could be properly charged only to headquarters operations was reduced to 2 per cent of sales in the first year of the new plan and is now below 1 per cent.

Simultaneously with its organizational changes, Sun began a study of how practical controls could be maintained for autonomous divisions.

The first step was to provide for regular review of operational accomplishments against established goals by the management committee.

Setting up realistic profit goals was a firm indication of both the division manager's grasp of his job and the effectiveness of top management's operating controls. Again, preliminary discussion and review with the budget committee helped the division man-

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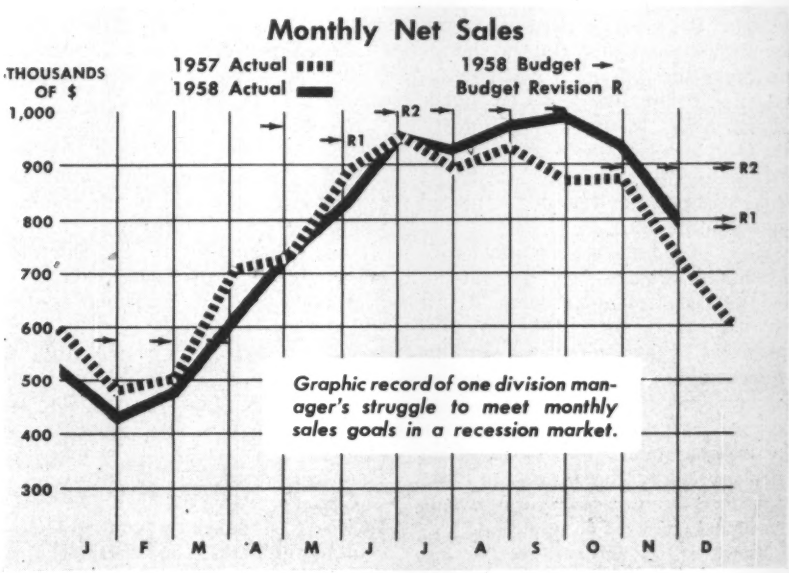
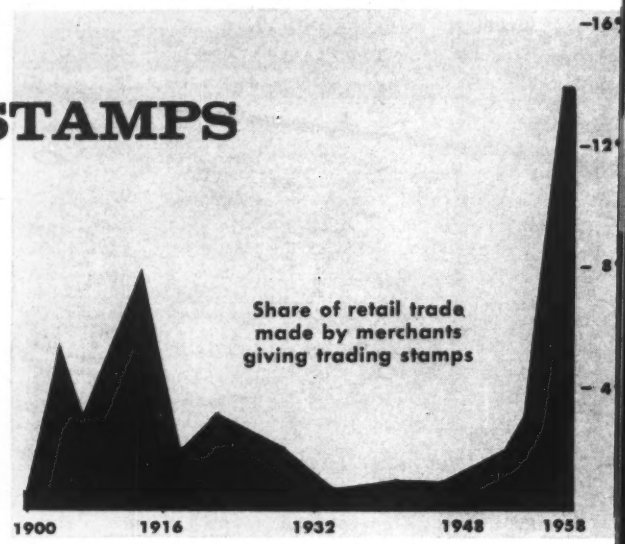


Graphic record of one division manager's struggle to meet monthly sales goals in a recession market.

The Continuing Boom in TRADING STAMPS

AARON STERNFIELD

Though they're still poison to plenty of retailers, trading stamps are proving a potent stimulus to sales for a growing army of chain stores and independent merchants.



DATA FROM SPERRY AND HUTCHINSON COMPANY

TRADING STAMPS, hailed as a miracle of merchandising by some retailers and condemned as an unfair trade advantage by others, are edging into new markets now that the chain grocery field in which they soared to success is virtually saturated with colorful, sales-enticing premiums.

Last year some $500 million worth of trading stamps were issued to customers of more than 200,000 retailers by an estimated 350 stamp companies. This was an 11 per cent increase in stamp volume over 1957—pretty impressive in a recession year.

But, compared with the rate of growth from 1952 to 1956, last year's increase was insignificant. In that four-year period, merchants offering trading stamps captured a 12 per cent share of the retail market. Progress has been slower since then.

Two developments accounted for the 1958 increase. Safeway, largest of the supermarket chains, adopted a stamp plan late in 1957, and Chicago, which had comparatively little trading stamp activity, opened up. Eight of the nation's top ten food chains already have stamp plans, and reports persist in trade circles that the two holdouts, despite their explicit denials, are wavering.

Requisites for success

However, for the first time in a decade, an appreciable number of food stores—mainly independents—dropped their stamp plans. Reason for their action was twofold: poor stamp plans offering weak premiums, and the failure of the stamp companies to get adequate circulation for the stamps by signing up neighboring merchants. One of the requisites for a successful stamp plan is that a wide variety of merchants in the same shopping area participate in the same plan.

Food outlets and gasoline service stations, which concurrently account for about 75 per cent of the volume achieved by the stamp companies, most nearly fit the requisites for a successful stamp operation.

A needed plus factor

The trading stamp people admit that stamps, in themselves, are not enough of an inducement to cause a customer to switch his patronage from one retailer to another. But the stamps can make the difference when retailers offer competitively priced standardized items. In the highly competitive food and gasoline markets where this standardization has reached a peak, stamps have provided a needed sales inducement.

Share of the market is another consideration. Stamps cost the retailer 2–3 per cent of gross sales. If, for example, there are 1,000 potential customers in the trading area, and the retailer, operating on a margin of 10 per cent, has 100 of these customers, he can cover the 2 per cent cost of the trading stamps by increasing his sales volume by 20 per cent. In order to do this, he must wean away twenty customers from the competition.

However, if another retailer has 5,000 customers of a potential 10,000, he must attract 1,000 of the remaining 5,000 just to break even. The higher the share of market the retailer already has, the less likely he is to benefit from a stamp plan. Or, from the other viewpoint, the greater the sale potential, the more attractive the stamp plan.

Grocery stores and gasoline stations, though links in giant chain operations, seldom have a commanding share of market in their area.

The higher the retailer's gross margin, the lower the sales gain required to make stamp sales profitable. Dr. Eugene R. Beem, economist for Sperry and Hutchinson Company, distributors for S&H green stamps, figures that a supermarket must show a gain of 12–15 per cent to make stamps profitable, while a service station needs an 11 per cent gain.

Harold Raab, of the Trading Stamp Institute of America, a trade association of 31 stamp companies doing an estimated 60 per cent of the trading stamp business, points out that a "family of stamp givers" is needed to make any stamp plan successful.

A collector of a particular stamp will remain a collector only so long as he can acquire a stamp from a wide variety of neighborhood merchants. If the stamp is available at only one or two local outlets, his chances of acquiring any meaningful quantity of stamps is diminished.

Also, the plan must have a key outlet where he makes frequent and substantial purchases. The supermarket is

the ideal outlet. The gasoline station, where purchases are frequent, if not substantial, is a strong second.

New target: department stores

Today only 4 or 5 per cent of the nation's department stores have stamp plans, but this situation is due for a radical change. Although the first trading stamp plan was launched by a department store and other department stores have from time to time issued their own trading stamps, conditions until very recently were not ripe for any major move to stamps in this retail area.

Specialty items sold by department stores are generally not available in other local outlets, thereby limiting the customers' chances of collecting stamps. In addition, the rise of the discount house coincided with the recent spurt in trading stamp activity. The discount houses were able to undersell the department stores by such substantial margins that trading stamps would have done little for the department stores except increase their overhead.

But these conditions no longer exist to the degree that they did six years ago. The discount houses have offered more services and departments and are reaching the point where their operating overhead approaches that of the department stores. And the department stores have begun meeting discount house competition. As the price gap between the two narrows, the inclination of the department stores to use trading stamps—and the incentive of the stamp companies to direct their attention to these outlets—increases. The department stores probably offer the trading stamp business its greatest potential market.

By the same token, if the anticipated move in the department store field materializes, and if the stamps help them meet discount house competition, the discount houses may be forced to follow suit within the next three or four years.

The shopping-center market

A more immediate prospect for trading stamp growth appears to be shaping up in the suburban shopping center field, with the centers issuing their own stamps in many cases.

A decade ago, the shopping center generally enjoyed a wide trading area, with little competition from neighboring shopping centers. But today the centers are in fierce competition, vying for patronage in the same trading areas. As a result, they are seeking merchandising devices to increase their share of trade. As the number of shopping centers increases, the share of trade of the average shopping center decreases, and, according to the theory that the outlet with the smallest share has the most to gain with a stamp plan, such plans appear more and more attractive. Some California centers have already organized their own stamp plans, and this type of stamp operation is likely to spread.

To date, the stamp companies have had little success with the chain variety stores, and prospects for expansion in this field do not appear bright. In many shopping areas, there is only one chain 5 & 10 store, and that store will continue to get its share of business with or without stamps. Also, while the service stations and the food outlets can depend on regular customers, the chain variety store patron is only an occasional buyer, and the stamps do not offer him nearly the same inducement.

PREMIUMS WITH *"remembrance value" offered at trading stamp redemption centers include luxury items that stamp savers ordinarily wouldn't buy in regular outlets.*

Druggists cry "foul"

Probably the most potent opposition to trading stamps comes from the drug industry. The National Association of Druggists, which has been fighting stamp plans largely on the issue of fair trade, reports that the percentage of drug stores participating in stamp plans dropped from 12.2 per cent in 1957 to 8.5 per cent last year.

The druggists' twin arguments are that trading stamps offer a discount which is the same as a price cut on fair-traded items, and that the retailer, by paying 2–3 per cent of his gross volume for trading stamps, must raise prices or cut profits.

There is some substance to the druggists' argument—stamp plans can, in certain cases, result in increased prices. The A&P chain, for example, has been meeting trading stamp competition by generally selling goods for less than its stamp-issuing competitors. And if stamps ever achieve complete saturation and are no longer capable of bringing in additional business, the consumer will have to bear the cost of the stamps.

Stamps and food prices

But, in practice, trading stamps do not raise food prices, according to a study of fifteen stamp cities and five non-stamp cities. The survey, conducted by Albert Haring and Wallace O. Yoder of Indiana University, covered comparative prices on a month-by-month basis from 1950 through 1956. The greatest spread, in September 1951, showed that prices in stamp cities were 4 per cent higher than in non-stamp cities. However, from the middle of 1955, the stamp city prices fluctuated about the non-stamp average, dipped 2 per cent below the non-stamp average in January 1956, and stayed there for five months.

Stamp sellers received even more cheering news recently when the U.S. Department of Agriculture announced that the allegedly higher food prices paid by customers of stamp-dispensing supermarkets were more than offset by the premiums received.

The legal outlook for the trading stamp industry is good, although

there may be continued pressure in state legislatures to eliminate or curtail the use of trading stamps. Only Kansas has an outright ban on trading stamps, but a few other states have restrictive laws which cripple the stamp plans. Federal intervention seems unlikely, since the Federal Trade Commission in 1957 declared that trading stamps, in themselves, are not unlawful.

Trading stamp competition forces non-stamp retailers to reduce prices in many instances, while the stamp-issuing outlets must keep their prices competitive.

What the retailer pays

The actual cost of the stamps to the retailer depends on his volume of purchases and on the stamp plan. The spread is from $2 to $3.50 per thousand stamps (the amount issued with $100 worth of retail purchases), but most retailers pay $2.50. Many merchants attempt to stimulate business on what normally are slow days by offering double stamps. This practice can lead to trouble when their competitors counter with triple or quadruple stamps, and an unprofitable "stamp war" results.

One source of revenue for stamp companies is the percentage of stamps that are not redeemed. Opponents of stamp plans have estimated that up to 30 per cent of stamps issued are never redeemed. However, the stamp companies scoff at the 30 per cent figure —most of them place the figure around 5 per cent.

Although most of the stamp companies will not disclose their sales figures, Sperry and Hutchinson is generally credited with doing the greatest volume of business in the field. Industry sources figure that S&H, Top Value, Gold Bond, and Eagle, in about that order, are the four sales leaders, accounting for about 60 per cent of the market. Other major stamp companies are Triple-S (the Grand Union plan), Merchant's Green (a wholly-owned subsidiary of Food Fair), and King Korn.

The Premium Market

The nation's 1,500 trading stamp redemption centers, which last year moved goods with a retail value of $500 million, constitute a plus market for manufacturers. It is estimated that redemption center premiums increase the total volume of consumer goods sold by manufacturers by $100 million a year or more.

In a survey made by the Hamilton Manufacturing Company, makers of kitchen furniture, 68 per cent of the persons who redeemed stamps for merchandise said the items they selected at redemption centers were products they normally would not have bought. A survey by New York University School of Retailing placed this figure at a considerably lower 22 per cent.

The NYU survey showed that most of the stamp savers had needs which could have been filled by items in the redemption catalogs, but few took advantage of the opportunity because they hadn't accumulated enough stamps. The stamp saver generally buys the items for which he has a pressing need at a retail store. When he eventually redeems his stamps (only 24 per cent in the NYU survey did so during the year), he selects products he might never have bought otherwise.

Goods offered by redemption centers range from catcher's masks to fire engines, but the concentration is on housewares and appliances and items with "remembrance value."

There is no manufacturing market for trading stamp premiums as such. Most of the goods are nationally advertised products sold at the redemption stamp equivalent of department store averages, but higher than discount store prices.

Redemption centers take more business away from department stores than they do from all other types of retail outlets combined, the NYU survey showed. Some 60 per cent of stamp savers said the purchase would have been made in a department store. Another 23 per cent said they would have made the purchase in a discount store, while 7 per cent would have gone to a small independent store.

The stamp companies, seeking to broaden their market, plan to step up their consumer promotion activities. Group stamp-saving plans by such organizations as the Parent-Teachers Association, the Boy Scouts, church groups, and volunteer fire brigades are encouraged. Members are asked not to contribute cash for the organization objective, but to turn in stamps.

The Norge Division of the Borg-Warner Corp. has taken advantage of the trading stamp boom to stimulate sales of its appliances by offering prizes to dealers and retail salesmen. Norge's 87 distributors have enrolled 8,000 dealers and salesmen in the plan, with the dealer having the option of using the stamps himself or awarding them to the salesmen.

To date, none of the major stamp companies has made any serious attempt to sell manufacturers on the idea of rewarding sales personnel with stamp bonuses, but the success of the Norge plan might well cause them to investigate this area.

However, stamp companies will continue to concentrate their major effort in the retail field, with the emphasis on developing new categories of retail outlets. This year stamp companies are expecting a minimum sales increase of 6 per cent, based on the anticipated rise in volume of existing accounts.

But the trading stamp industry, looking back on its phenomenal growth in less than a decade, will not settle for the minimum. END

THE AUTHOR • Aaron Sternfield reports extensively on distribution and marketing problems as an editor of *Vend* magazine and a contributor to *Billboard*. A former newspaper editor and publisher, Mr. Sternfield has also been editor of *Hunting and Fishing* magazine.

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Needed: A New Look at Overseas Investment

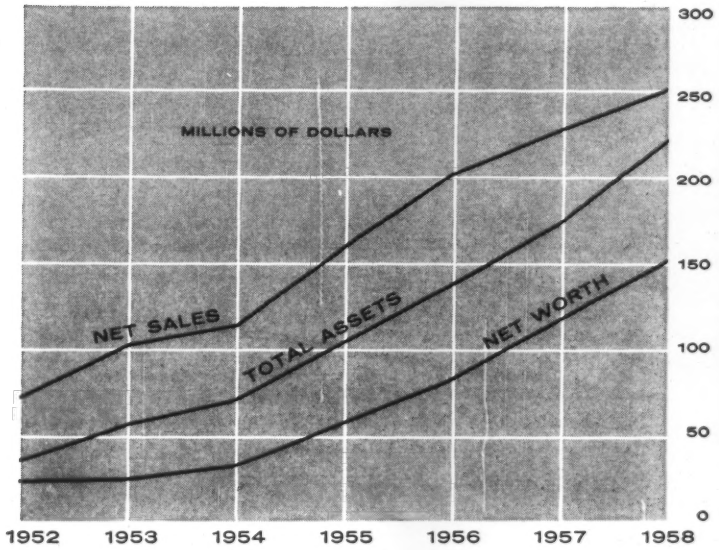
Fast-breaking developments abroad promise new incentives to U.S. companies with a stake in overseas business. This rundown of the key forces at work on foreign fronts can serve as your guide to intelligent planning for the months ahead.

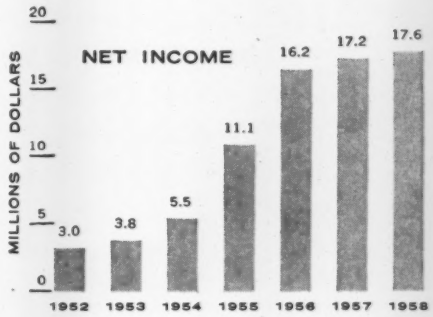
ONE ITEM THAT is bound to appear with some frequency on the agendas of board room conferences this year is "Company Investments Overseas." To some management planning committees, the problems to be resolved in this area of study will be as strange as the markets themselves. To other management groups already involved in overseas operations, it will be more a matter of reviewing and revising existing programs to conform with the expanding theatre of international trade. In either case, American management will have to make some fast, tough decisions in the months immediately ahead.

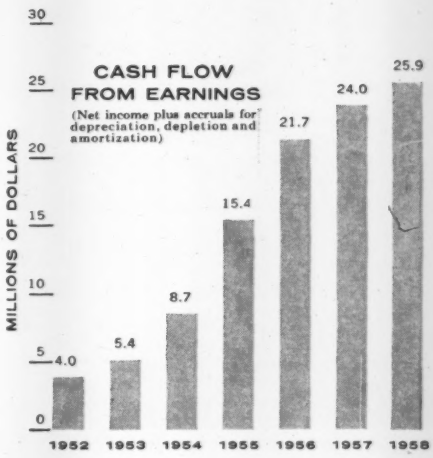
And, in many cases, immediate and future programs for overseas investments may have to be upgraded if maximum potentials in sales and profits are to be realized. Here are some of the reasons why:

- The European Common Market is no longer a paper plan. This potential mass market of 165 million people began operations on January 1.
- As a dramatic prelude to the opening of the European Common Market, ten European countries radically altered their fiscal practice to permit convertibility of their currencies in trade interchange with other nations. Only six of the countries actually function within the ECM. They are France (which devalued its franc from 420 to 493.7 to the dollar to improve its trading position), West Germany, Italy, the Netherlands, Belgium, and Luxembourg. But in order to compete and possibly also to encourage the eventual creation of a broader European Free Trade Area, equivalent currency convertibility action also was taken by Great Britain, Norway, Denmark, and Sweden. An ancillary development was removal of quotas from 90 per cent of France's European imports. India, Austria, and Finland have also taken steps toward freer convertibility.
- To encourage and reinforce the free exchange of currency, at least in trade channels, the U.S. Government has endorsed, in principle, the proposal to increase the gold and currency holdings of the International Monetary Fund from $9.2 billion to $14.3 billion. This will cushion some of the temporary drains on the foreign exchange reserves of the convertible currency countries and will give them more time to correct foreseeable trade imbalances.
- The U.S. Government has supported a move to increase the capital structure of the World Bank to an aggregate of $20.5 billion, up twofold from existing levels. If approved—and this seems likely later this year—the World Bank will be able to accelerate its lending program.
- Other plans to expand the pool of international credit and capital are being formulated within U.S. Government circles. There is the expressed intention to increase the scope of the Development Loan Fund by raising the capital ceiling from its present

How American-Marietta Has Grown

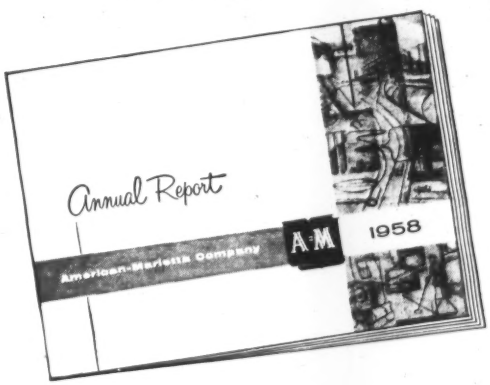






1958 was the ninth consecutive year in which sales of American-Marietta Company exceeded those of the prior year. The Company's Annual Report covering its progress and major activities has been sent to 33,700 Shareowners.

1958 Annual Report
Sent on Request



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IT'S SOUND BUSINESS to put Brazil in your plans for growth, too. For your copy of a booklet giving particulars on opportunities for investment in Brazil, write the Area Development departments of Cia. Auxiliar de Emprêsas Elétricas at the address below or American & Foreign Power Company Inc., 100 Church Street, New York 7, N. Y.

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$625 million level. Last June the Export Import Bank of Washington asked for and received a hike in its lending authority of $2 billion, increasing funds on tap to $7 billion. But even this now seems inadequate to sustain the current tempo of operations, and plans to go into the open market for more funds (following the pattern of the World Bank) are being bruited about.

- Among the major legislative requests for 1959 submitted by President Eisenhower to Congress are (1) a program to double the $500 million limit on insurance for private investors to cover losses from revolution, as well as war or expropriation, and (2) to permit U.S. participation in an inter-American development bank.
- Recognizing that credit and capital availability must be implemented by confidence, key U.S. departments and agencies are now busily working on a balanced program, including, among other things, tax concessions to encourage private business to use these expanded credit facilities and also to put their own dollars to work overseas. Here are some of the investment inducements that are being concocted: U.S. tax reduction on business profits earned and retained overseas; simplification and expansion of the overseas investment guaranty program under the aegis of the Export-Import Bank of Washington; accelerated negotiations with foreign governments to ease restrictions on foreign investments.
- Reinforcing these fiscal and legislative maneuvers is a publicity program which promises (1) to sell foreign officials and business men abroad on our system of free enterprise, and (2) to alert American management to investment opportunities by broadcasting leads through Government media.

Stage set for boom

Any of these measures is a powerful stimulant to overseas investment. And any combination of these ingredients can create explosive expansion in investments abroad. With pressure mounting to meet the challenge of Soviet invasion of world markets, chances are good that our Government will spur U.S. business investments abroad by every means at its disposal. The rest will be up to U.S. management.

During recent years, American business has been investing abroad at

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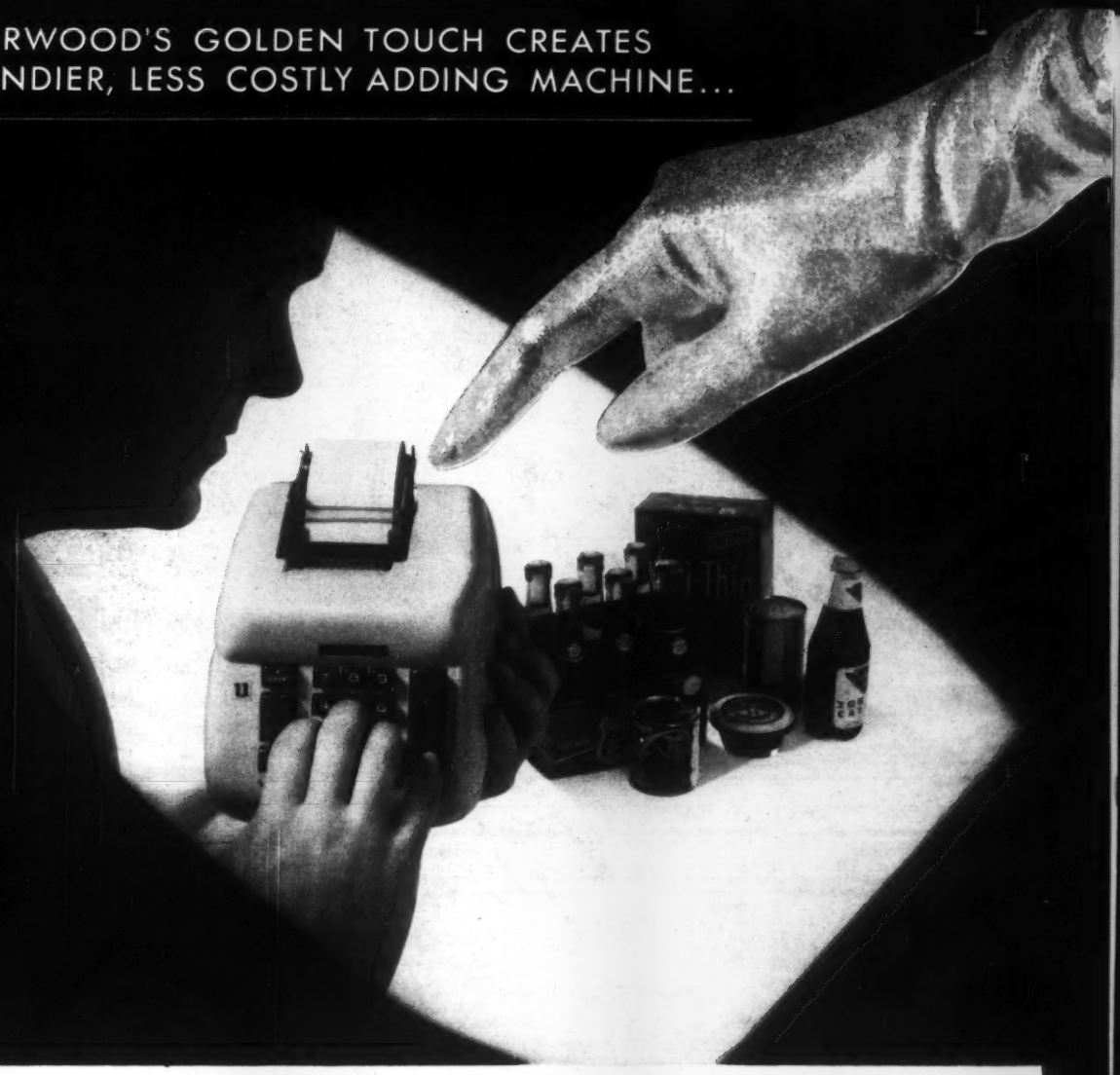

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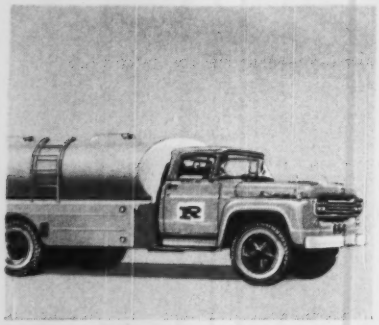

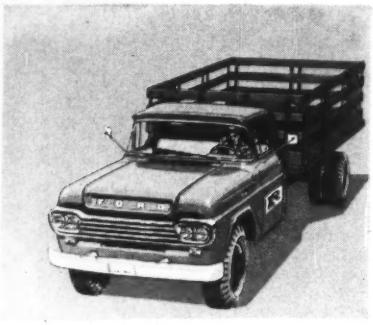

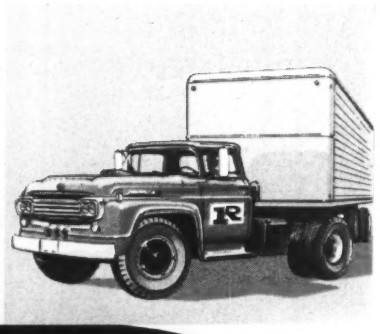

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customers profit in many ways from renting Fords or other dependable trucks from the "Big R." Among the important benefits they report are: freedom from responsibilities...release of vital working capital...uninterrupted trucking operations...accurate budgeting of transportation costs. Ryder's transportation engineers can show you how to gain these advantages, too.

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Ryder System, a fast-growing publicly-owned company, also operates modern truck lines in 20 Eastern and Southern states. Write today for information on Ryder System or for brochure, "How Modern Management Can Profit from Truck Leasing."

a steady rate of $3 to $4 billion annually, and it is reported to have some $24 billion at work in transplanted assembly lines, mines, and offices overseas. But this figure is conservative and does not include the huge sums set aside for depreciation allowances and development expenditures. Another imponderable is the extent of locally reinvested income from royalties under licensing agreements.

Today, company after company is going into world markets. Many of these moves are made within the framework of expansion programs. But some are defensive in character, made either to reinforce the competitive posture of U.S. brands in certain markets overseas, to tap new sources of extractives or other raw materials, or to produce abroad components of better quality and/or price to be put into "Made in USA" consumer or capital durables (see "Imports Can Pay Off for You in 1959," DR&MI, February 1959).

Whatever the reason, whatever the objective, American management today is becoming more and more aware of the potentials that exist abroad and is busily exploring profit possibilities that can be realized, not only through sales expansion, but also by uncovering new supply sources.

Keeping tabs on markets

The methodical approach, the constant review of key elements is the only sound approach American management can take to preserve its markets abroad. Here is a broad pattern of factors for management groups to observe in developing a constructive overseas investment program:

- Collate statistical and reference material on overseas areas on a country and geographical bloc basis. (For details on subjects and U.S. sources see "Overseas Markets Research," DR&MI, May 1957.)
- Review the experience of U.S. companies that have invested in the country or markets under consideration. Updated lists of U.S. branch establishments usually are available from commercial attaches or trade counselor divisions of foreign embassies in Washington, D.C., or consular offices in principal U.S. cities.
- Hire a press clipping service or develop a system to keep tabs on new overseas investments by U.S. companies in fields related to yours.
- Establish the same practice to keep track of press releases on new loans, new investments, and other new fiscal commitments made by the World Bank, the Export-Import Bank of Washington, the Development Loan Fund, and equivalent agencies. Also watch for new loans and foreign government bond flotations underwritten by U.S. commercial banks. Particular attention should be given to loans made by the World Bank and other agencies for installing or expanding power, water, transportation, and communication facilities, since these are harbingers of increased industrialization.
- Look for press announcements of current brochures released by foreign governments on investment laws and prevailing conditions. They are usually available from foreign embassies or consular offices in the United States.

Following investment leads

- Review the overseas investment opportunities published by the U.S. Department of Commerce in its publication, *Foreign Commerce Weekly*. Also arrange to receive bulletins posting investment leads published by foreign chambers of commerce, functioning within the United States. Lists of these are available from the U.S. Chamber of Commerce in Washington.
- Keep posted on the pending plans for new common markets. Also watch for the possible expansion of the European Common Market to include the United Kingdom, Scandinavian and other countries. Consider the location of new plant facilities from an area standpoint, within and without the framework of a common market, if this type of market merger is under study by foreign government groups. This may help avoid costly duplication or close overlap of production and distribution facilities.
- Finally, don't rush into transplanting assembly lines or distributive facilities into any market where foreign government edicts or regulations threaten or throttle your exports to that area. Of course, it's not always possible to anticipate the timing, the degree, and the persistency of trade embargoes, but, within the framework of any short- or long-range investment program, provision for this type of contingency should be made so that hasty decisions will not compound the hazard. Investment abroad should be a calculated risk—not a gamble. —ALEXANDER O. STANLEY

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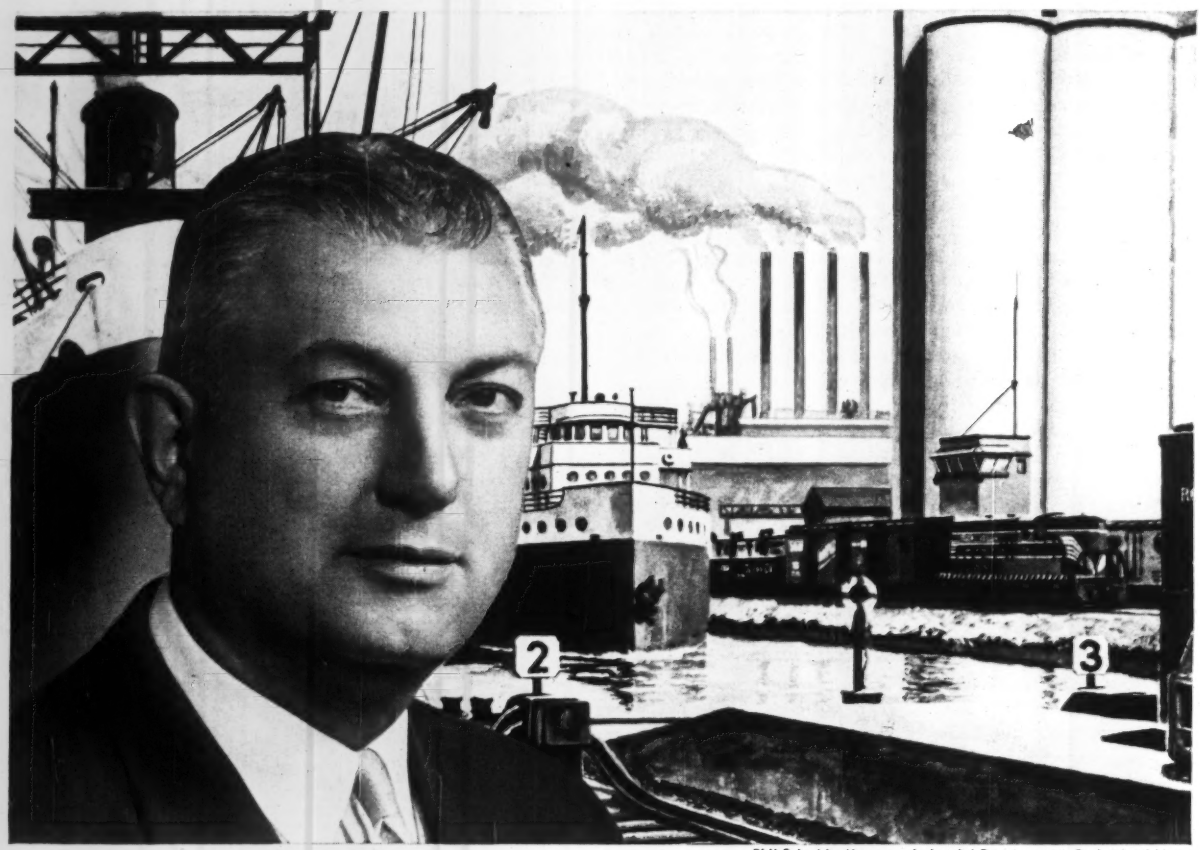

Phil Schmidt, Manager, Industrial Development, Rock Island Lines

There's room for you in
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for example

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Like to locate inside Chicago—yet face outside on the world? Phil Schmidt of the Rock Island can show you 8 splendid industrial sites totaling 300 acres that actually offer such a choice in the Calumet Harbor-Port of Chicago area.

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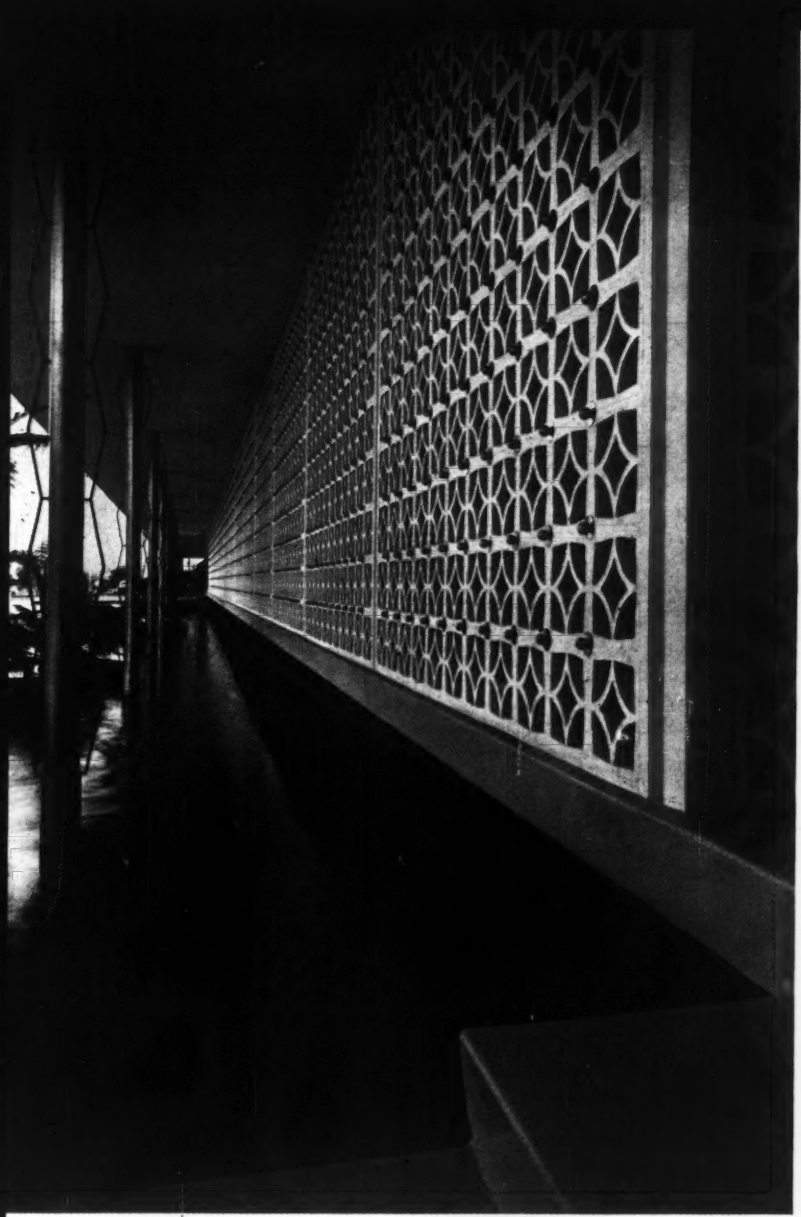

TREND TOWARD *the unusual in plant design is reflected in Stuart Company's new Pasadena, Calif., pharmaceutical plant.*

PLANNING TOMORROW'S PLANTS

Industry gears up for a decade of expansion

Plan Ahead for Plants Ahead 62
Management is much more systematic in planning new facilities now than it was a decade ago. What are the best current procedures? Where do the specialists fit in? A nationwide survey and detailed case histories reveal new approaches in planning and financing new plants.

Design for Profit Making 66
The past decade has brought sweeping changes in methods of design and construction of industrial plants. What is management doing to get the most mileage out of the construction dollar?

Dynamic Plant Design 88
Here's a point-by-point master checklist for top management on the questions that must be answered before detailed plant plans can be jelled. It provides directions to help management get the one plant that can do the most for the company.

New Light on Site Seeking 90
New techniques in plant location are giving some companies an important edge over competition. The results of a new survey of 107 major companies, show how management finds the one spot where its new plant will make the best sense.

Packaged Sites for Industry 94
Many companies are finding planned industrial districts (or parks) the solution to their plant location problems. What are the advantages and drawbacks of locating in these industrial districts?

A 5-Part Special Report to Management

Across the nation companies are readying plans to meet the floodtide of demand expected in the Soaring '60's. This major feature highlights fresh trends and practical techniques in planning, designing, and locating new plants.

For information regarding reprints of this Special Report, see box on page 134

New, precise procedures are helping management plan for the boom markets of the Soaring '60's.

SENIOR VICE PRESIDENT *Louis N. Hunter and company specialists plan new facilities at National-U.S. Radiator Corp., Johnstown, Pa., producer of heaters and air conditioning.*

Planning Ahead for Plants Ahead

TOP MANAGEMENT'S current optimism about the prosperous decade it sees ahead is matched only by the extent of its planning for the Soaring '60's. All across the nation companies are readying plans for the new plants, warehouses, and other facilities needed to serve a market soon to be swelled by 10 million new families which will be formed by the "war babies" of the early 1940's.

Despite the sizable expansion in industry's plants in the past decade, most companies in a new DR&MI survey (for details see below) expect even larger plant capacity will be needed by 1965. Estimated increases range from 10 per cent (a cordage company) to 200 per cent, reported by three companies (steel, plastics, rubber). The average (median) anticipated increase in plant capacity is 35 per cent.

Through long-term market projections, management senses an unprecedented demand for products of all kinds. Now more than ever before, industry is probing the future market to determine specific product demands and to gear its production facilities accordingly. Already, spending for new plants and equipment is on the rise.

Out of management's collective experience in putting down tens of thousands of new plants during the last decade, new patterns of management action have begun to emerge.

Says Maurice Fulton, president of Fantus Factory Locating Service, Inc., "Probably the greatest single development in industry in the past several years has been the recognition by top management of the critical importance of planning ahead for new facilities."

The new DR&MI survey of 107 manufacturers bears out this statement. The overwhelming majority of the surveyed companies report that their methods of planning for new plants today are vastly different from those of ten years ago.

Special staffs and departments—such as facilities planning departments—that didn't exist a decade ago are now used. The increased number

continued on page 115

About This Survey

THIS NEW DR&MI survey of plant facilities (including planning techniques, design and layout, construction methods, and location) is based on detailed replies to a four-page questionnaire completed by 107 manufacturing concerns. They fell into the size groups shown in the table:

Fourteen replies each came from chemical producers and manufacturers of transportation equipment. Thirteen were from producers of electrical machinery and twelve from makers of nonelectrical machinery. Nine were supplied by food processers and six each from fabricated metal producers, primary metal processers, and producers of stone clay and glass products. Five each came from rubber product manufacturers and paper producers. The remainder came from various industries including textiles, apparel, furniture, and others.

Annual Sales	Number of Companies
$1,000,000 to $4,999,999	7
$5,000,000 to $9,999,999	2
$10,000,000 to $24,999,999	10
$25,000,000 to $49,999,999	8
$50,000,000 to $99,999,999	16
$100 million and over	64

Here's how one enterprising small manufacturer reaped the benefits of . . .

Long-Range Planning for New Plant Payoff

WHAT SHOULD a small company in a new industry dominated by larger competitors do when its sales potential outgrows its manufacturing capacity?

This was the problem Reeves Soundcraft Corp. faced in 1954 when sales hit $2.2 million—a problem that wasn't met until the company moved into its new 50,000 sq. ft. plant in Danbury, Conn., last November.

But, in those four years between the initial need for a new plant and its completion, the company went ahead with product and market developments which transformed it from a small competitor in the burgeoning magnetic tape field into an industry leader.

"There are times in the life of a corporation when it is more important to establish a program for long-range growth than to increase immediate sales," explains Frank B. Rogers, Jr., executive vice president of Reeves. "We were fortunate enough not to panic in the face of 'easy dollars.' The plant we have now built will not only help us 'skim the cream' of our growing industry, but will help us maintain good sales and profit during the years ahead when competition is tighter and growth is harder to come by."

Reeves, which previously manufactured blank recording discs, entered the new magnetic tape market in 1949. The swift growth of this market forced the company within a year to move from a 400 sq. ft. plant to one ten times that size. Sales spiraled upward, and, in 1953, Reeves moved again to a 14,000 sq. ft. plant in nearby Springdale, Conn. By 1954, even this building was cramped.

"We knew at that time that we could sell more tape than we could produce," Rogers explains. "But we weren't sure exactly how much more we could sell or for how long. We had made a success of doing pretty much what our bigger competitors were doing. Although this was good strategy in the beginning, we knew it wouldn't provide a secure basis for stable growth in the future. Our prospects were much too dependent on what the big boys did and the degree to which they tolerated our operation."

New products for new markets

In their planning, the Reeves executives realized that when a company goes into an established field there are three courses open:

- It can produce a better product at the same price
- It can turn out as good a product at a lower price
- Or, it can make a product different from its competitors'.

Reeves decided that, because of the large lead built up by its competitors, the first two alternatives were less inviting than the third.

As a result, the company postponed building a larger plant for two years. Instead, it devoted cash and energy to locating a new specialized market for magnetic tape—one not being covered by the bigger concerns. The next step involved planning the processes and facilities needed to produce the specialized tape.

The company found that the motion picture industry was the market it was after. Reeves came up with a magnetic film that met the special requirements for motion picture recording and reproduction.

At this point, two completely unexpected markets opened up. Insurance companies, beset by record storage problems, were discovering that a small roll of magnetic tape would hold all the information stored on a cubic yard of punched cards. At the same time, the Armed Forces were finding that tape was the most effective way to program the controls of rockets. By sheer coincidence, the magnetic formulation that met both of these new needs proved to be similar to the one developed by Reeves for the movie industry.

"Once we had established an area of manufacture where we could prosper and grow without too much initial worry from competition, we decided that it was time to build our new plant," Rogers says. "Next, we knew that our engineers who had developed the technology of tape manufacture could probably design a plant for us. But, while we knew our own processing methods better than anyone else, we recognized that we were not experts in such areas as plant layout, materials handling, production scheduling, and inventory and quality control.

"We decided on outside counsel, and this proved to be the smartest move we made in the planning of the new plant."

Where and how much?

Before the engineering of the plant began, management had to make a number of other far-reaching decisions about the new facility. Where should it be located? How much capacity should be provided? How should it be financed?

To avoid damaging their confidence in the company, employees were told of the impending move early in the game. A liberal incentive plan also was devised to hold on to as many employees as possible. Because of the company's desire to keep its skilled workforce as nearly intact as possible, all employees who stayed until the move were promised a bonus of 10 per cent of their annual wages. Those who remained with the company for at least six months after the move were promised a second 10 per cent bonus.

A warm welcome

Danbury, Conn., was chosen as the best location for the new plant. The city's diminishing hat industry had left a pool of experienced workers to fill the company's expansion needs. The city also was eager to attract new industry, and offered a number of important services to the company at a nominal charge or no cost at all.

To provide access to the plant, the city purchased land along the shoul-

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This Special Report to Management, "Planning Tomorrow's Plants," was prepared by Senior Editor Thomas Kenny, with the assistance of Senior Editors Melvin Mandell and Kenneth Henry.

der of a one-mile-long sheep path and paved it up to the plant door. City engineers surveyed the proposed site and made test borings for the company. So that Reeves could qualify for a lower insurance rate by installing sprinklers, the city brought in an eight-inch main to provide sufficient pressure.

The company decided that leaseback provided more benefits than any of the other financing arrangements available. The management reasoned that, with a head start in a special market, it was better to put cash into increasing sales and growth activities such as research and development than into brick and mortar. Another justification for leaseback was that technological change was so frequent and unheralded in the industry that the company which did not put aside some current assets to meet these changes would soon be left behind. So Reeves signed a twenty-year lease with an option to buy after ten years.

The uniqueness of tape production made it necessary for Reeves to make some very unusual arrangements with The Old Colony Company of Danbury, the lessor. The first of these was to grant permission for representatives of Trundle Consultants (Cleveland) to supervise both the planning and the day-to-day construction of the plant being built with the lessor's money. The second was that, since the lessor would pay only for a "general purpose plant," all of the specialized requirements that would modify the general purpose nature of the leased plant had to be paid for by Reeves. These included climate control equipment, unusual internal power distribution, and elaborate piping.

Gaging market growth

To determine how much expansibility to build into the new plant, a six-man team from the company's sales and finance departments spent six months researching the future share of various markets, particularly the production outlook for tape-using computers.

The group studied the probable course of the entire tape industry in the coming ten years—the length of time the company was committed to the new plant. Management then divided its current share of the market into the projected total industry volume a decade in the future. This was the capacity the plant had to be able to provide on one shift.

Should Reeves's share of the market increase or should the total market swell more than expected, volume could be almost tripled beyond this point by adding two shifts. Beyond this, the building could be expanded.

Management realized, however, that the company could not count on maintaining its existing share of the market as more and more competitors came into the field. As a result, it decided to go all-out to make the new plant so efficient that, even if all of the growth plans failed to materialize, it could increase its profit on existing volume.

With these goals in mind, Trundle's consulting engineers went to work and studied the company's existing facilities to uncover efficiencies for the new plant.

Management realized that if it didn't plan ahead to meet orders during the moving operation, the company was likely to lose as much as 50 per cent of its annual sales, and it would be very difficult to get back a good deal of this business.

Therefore, to provide for business continuity, the company set up a pilot production line in the new plant. This line was running before the old lines were dismantled.

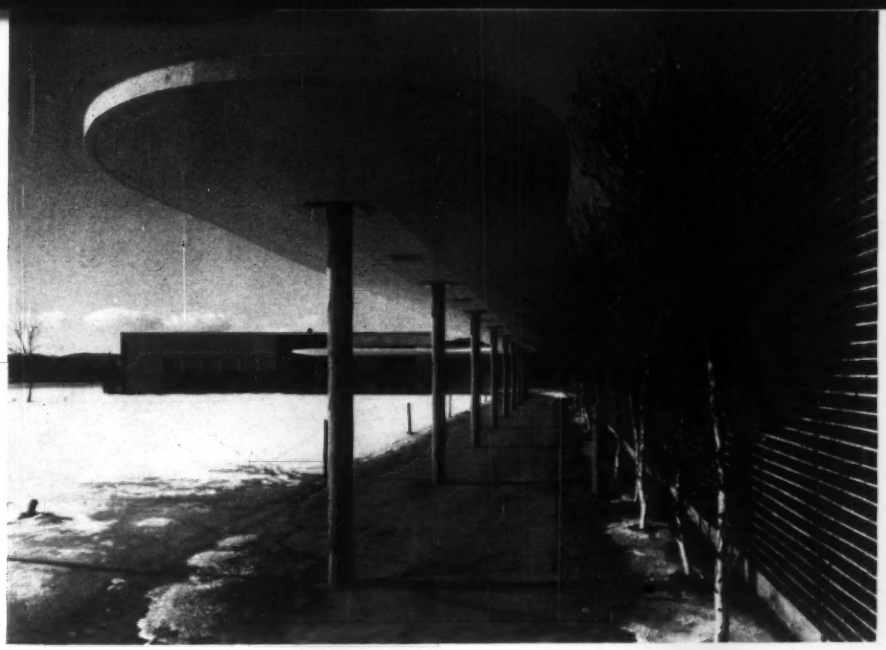
Improving materials handling

In the new plant, related departments and functions were located close to one another, making for ideal materials handling conditions. Where numerical quantities justified them, conveyers were installed. All raw stock was palletized, moved by forklift trucks. In the old plant, materials handling costs had been about 50 per cent of the production cost. With the improved layout and the addition of mechanized handling, this cost was reduced to less than 20 per cent. Climatic control increased the number of annual production days, in addition to permitting the company to make new kinds of specialized tape that could not be made before.

"We are now in a position to really catapult into the tape markets in which we have become leaders," says Rogers. "In the other areas in which competitive companies have already gained a lead, we can give them an awfully good run for their money, in terms of both price and quality."

The new plant is an investment for achieving the goal of all good management — an increasing return on investment. Reeves will be able to handle the greater volume that is in prospect, while at the same time increasing to the maximum the output per manhour and the output per dollar of overhead expense in the competitive years ahead. END

THIS NEW *Reeves plant at Danbury, Conn., was built to specifications on a leaseback deal and designed to produce a special magnetic tape.*



IN SNOW *or in sun, this cast-concrete canopy adds a dramatic, colorful, and practical touch to the new Split Ballbearing plant at Lebanon, N. H. Supporting columns in Chinese red contrast with the white canopy which has the practical function of protecting the entranceway.*

How a Small Company Plans for Growth

A DUAL-FEATURE program for forecasting profits and growth has helped Miniature Precision Bearings, Keene, N.H., double its sales in the last four years to about $6 million.

Growth is a corollary of many of the company's goals. These are:

- To have the best possible facilities for production and research
- To maintain close customer relations, stressing engineering service
- To provide organizational flexibility with group participation in company management
- To provide a satisfactory return on investment through profit-planned operations.

Two planning programs set up during the past two years guide the company toward these profit objectives. The first plan charts manufacturing needs for a year ahead to avoid emergency action in meeting unexpected rises in sales volume. MPB makes a projection each month of the volume expected in the next twelve months. The projection is based on interviews with hundreds of customers across the nation.

This new program of forecasting gives management time to prepare for the expected advance or decline. When the forecast points up the need for more capital, management can decide either to raise the money or cut back spending in less critical areas. Very often, need for equity financing can be sidestepped by the simple expedient of better cash flow. Short-term forecasting gives the look-ahead needed to make sound decisions.

Most important is the fact that the company knows what it's up against early enough to avoid making an adjustment under duress.

Taking the long view

The second part of the program is the long-range forecasting done over a ten-year period and revised annually. The objective is to look far enough ahead to provide for future company needs that cannot be met through one-year planning alone. The company gives constant attention to:

- New facilities
- New acquisitions
- Product development (both internal and external)
- Long-term personal needs.

Forecasts are based on extensive interviews with the trade, supplemented by marketing data.

Long-term and short-term planning have an additional advantage for MPB. Fast decisions can be made on the basis of information which has been gathered in advance. Says William M. Scranton, executive vice president: "We've been right most of the time. But even when we haven't, the fact that we were able to move fast has enabled us to bounce back almost immediately from erroneous decisions. Although we have moved fast and often made money on these bad decisions, we are still shooting for a higher average of good decisions. This has led us to place more and more emphasis on how we utilize this forecast information."

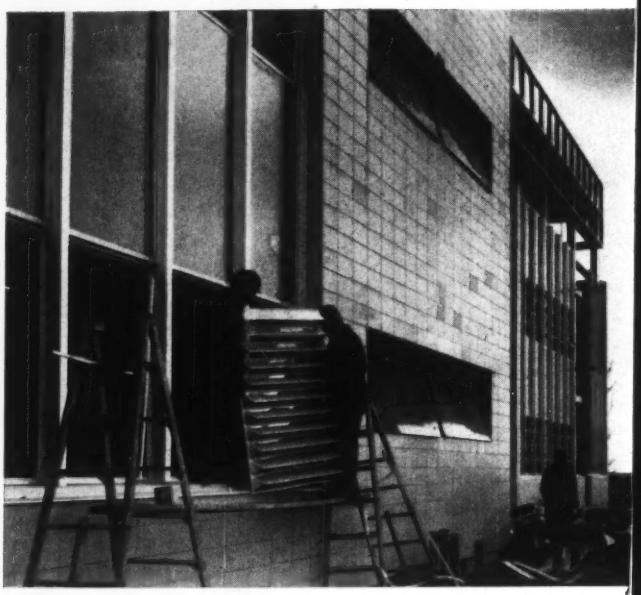
In planning future growth, the company often calls upon members of the board of directors. President H. D. Gilbert has selected his directors with utmost care, and he advises: "Start building your financial connections as early as you can. Keep them fully advised of your growth. Go to see them. Have them visit your facilities. If they're genuinely interested, offer them a directorship."

Gilbert's directors include old friends, stockholders, and local financial leaders. There is a leading Boston lawyer; a partner in the securities firm that helped finance Gilbert's first money-raising venture; a local attor-

continued on page 120

Management is trying new approaches and new construction methods and materials as it searches for a . . .

Design for Profit in New Plants



ACRYLIC PLASTIC *louver windows cut glare but let in light at Monsanto Chemical Company's plant at Creve Coeur, Mo.*

AN INDUSTRIAL realtor in Chicago, James C. Downs, tells this story: "I was called out the other day to look at a plant which is less than ten years old. A friend of mine who runs it told me, 'We want to build a new plant.'

"I asked, 'How come?' and he said, 'Well, we've developed a new production method which will result in such great economies in our manufacturing process that we could throw this plant away and still afford to build a new one.' "

Like many other close observers of building construction trends, Realtor Downs concludes that technological change is behind most decisions being made today to build new plants.

Companies are discovering that it is often much more economical in the long run to build a new plant from the ground up to produce a new product than to attempt new product development on antiquated equipment.

Capacity for the '60's

Total plant capacity for the nation as a whole is certainly more than plentiful at the present time. In fact, most plants are still operating below full capacity. However, there is a severe shortage of the highly efficient, low-unit-cost capacity which companies are rushing to build into plants in preparation for the lush markets ahead in the Soaring '60's.

Says economist Pierre A. Rinfret of Lionel D. Edie & Company: "We have a pretty rigid definition of what constitutes a growth company—it is one that is able to hold or lower its unit cost of production. True growth doesn't come from higher sales volume; it doesn't come from simply growing faster than the economy as a whole."

In 1958, the steel industry suffered the most severe contraction of the postwar period. Yet many of the steel companies made money at 60 per cent of capacity. And the ones that were making the most money were those that had spent money to put in place the most efficient facilities.

Galloping obsolescence

The task of bringing the nation's industrial facilities up to date is a big one. The plants operated by the 107 surveyed companies (see survey details, page 60) average out to twenty years of age. Fifteen of the companies are still operating plants that have been in existence for at least 40 years, and three of these have plants more than 60 years old.

According to Harold B. Hess, president of the Society of Industrial Realtors: "Within the next ten or fifteen years, practically every present-day plant will be obsolete if it isn't rebuilt and modernized to keep up with competition."

Many forces are at work to make modern, efficient plants vital necessities:

- Impending technological changes in production methods
- New products, now appearing more rapidly than ever before
- A business climate permeated by mergers and acquisitions
- The necessity for a flexible product line to meet competition

Because technological change is more rapid today, management's decisions about plant layout and design are just that much more critical.

Almost all the surveyed companies —and particularly those in the metalworking industry—report that automation has had important effects on the design of their new plants and their entire construction programs.

Some concerns—such as Griffin Wheel Company of Chicago—have had to abandon old facilities entirely and construct new plants around the new automated processes.

Design for automation

In contrast, several others report that automation has resulted in greater capacity from the existing plants, thus deferring the need for new construction, but calling for extensive modernization of old facilities.

D. F. Beck, director of manufacturing engineering for Northrop Corp. of Hawthorne, Calif., reports that auto-

mation has increased the importance of floating slab floors, maintenance zones, communications facilities, and noise reduction while decreasing inspection and storage areas.

According to H. B. Miller, General Electric's vice president in charge of manufacturing services: "Automation presents the need for complete equipment layout before the final building design is begun, with flexibility built in through wide bay spacing and ample head room. It will eventually result in far greater production per square foot. Thus, future plant expansion must be considered in these terms."

D. J. Davis, vice president of manufacturing research for the Ford Motor Company, has said, "In some of Ford's new plants the use of automated equipment requires 40 per cent less floor space than non-automated machinery and equipment producing the same products in the same quantity."

continued on page 126

How Design and Construction Are Changing

Here's a top management briefing on the important new developments in plant design and construction.

Basic changes in factory design and layout

THE KEY FEATURES in plant design today are economical expansibility and flexibility. Keeping in mind five- and ten-year goals, management is putting down plants that can easily accommodate changes in volume or product mix—i.e., large one-story plants located on sizable sites.

The introduction of automation calls for fewer people and more space for machines. Consequently, new plants require less area for employees' facilities and more space for control areas.

The average plant is changing in shape from the traditional square pattern to the long or frequently L-shaped structure. Ceiling heights are stabilizing at about fourteen feet, while air conditioning is spreading steadily.

Plant bays are stabilizing at 30 feet by 60 feet. New windowless plants outnumber those with fenestration. Aisle space is shrinking as less cumbersome maintenance methods are introduced. Concrete flooring with hardening additives is most common.

For decorative purposes, asbestos shingle siding, metal sidings, and painted cement block have largely replaced brick, except for ornamental purposes.

Partitions of material other than masonry cut the cost of installing wiring, plumbing, and air vents. With hollow steel stud partitions, for example, these utilities can be enclosed in the wall at a very low cost. The partitions can be reused when space needs change. There is more usable floor space in relation to the over-all size of the building than in the past.

The use of new lightweight materials, such as aluminum and glass-fiber products, is increasing.

The use of pre-stressed, reinforced concrete and thin-shelled concrete makes it possible to eliminate columns and provide clear indoor spans.

Specific cost-cutting methods for constructing plants

USE OF non-loadbearing curtain walls for interiors and exteriors. Initial cost is less than masonry, and change-overs for expansion can be made cheaply by taking down the exteriors and reassembling with new units.

The prefabrication of curtain walls and windows to offset rising labor costs. Construction units produced in the shop rather than on the job can save about 40 per cent. Labor rates are lower, mass production economies can be achieved, and the need for scaffolding is avoided. The use of masonry construction has declined.

Repetitive framing on a modular pattern. This also makes use of prefabricating techniques and saves the time of cutting and joining framing on the job site.

Tilt-up concrete wall panels reduce labor, time and cut costs for warehouse construction. Eight inches or more of concrete are poured on the floor slab, which serves as the bottom form for the wall. When hard, it is tilted into position as a permanent wall.

Pre-cast concrete wall panels (sandwich insulation construction). These are supported directly on the steel building frame to replace outside materials, such as brick. Moreover, they require no further finishing on the inside with plaster or insulating materials.

Off-site fabricating. This now extends beyond the actual architectural units to include boilers, piping, panel wiring, and motor controls.

Unit-of-work planning. This program of detailed scheduling helps contractors prevent work stoppages due to lack of materials, tools, or labor at any one spot.

Use of lighter and more mobile construction equipment. This provides greater flexibility and cuts the construction period substantially. Plastic enclosures and unit heaters permit working through the Winter.

Among the companies which provided information on plant design and construction were: Baltimore Contractors, Inc., Baltimore, Md., Welton Becket & Associates, New York; H. F. Campbell Construction Company, Detroit; Caudill, Rowlett & Scott, Houston, Texas; Daniel Construction Company, Greenville, S.C.; George A. Fuller Company, New York; The Lummus Company, New York; F. H. McGraw & Company, New York; Sherwood, Mills & Smith, Stamford, Conn.; Stone & Webster Engineering Corp., Boston; United Engineers & Construction, Inc., Phila.; Wigton-Abbott Corp., Plainfield, N.J.

Pitfalls for Management in Planning New Plants

THERE IS probably no other area that contains as many pitfalls for management as the designing and building of a new plant.

The mistakes that stand out starkly after the new plant has been in operation for some months are merely evidence of planning errors that existed all along, but were not recognized in drawing-board stages. The two most common mistakes are failure to allow enough flexibility to provide for future changes in layout and economic expansion and building in too little or too much room for expansibility.

Here's a rundown of the specific errors reported by the 107 surveyed companies from their own experiences in putting down new plants. How many of them can you discover in your own company?

☐ Using high-cost manufacturing space for storage.

☐ Installing outdated equipment in a new plant.

☐ Starting construction before the detailed design is thoroughly jelled.

☐ Neglecting to include modern facilities for the handling of waste materials in the original detailed design.

☐ Including multiple columns to cut construction costs, thus limiting future flexibility.

☐ Failing to get complete approval on detailed design and layout from manufacturing, maintenance, and engineering departments before construction contract is signed.

☐ Deciding on an overspecialized building design, resulting in a lack of flexibility for alternate use or expansion.

☐ Using design engineers who are not thoroughly familiar with both industry practices and plant processes.

☐ Failing to allow sufficient lead time between the projected completion date and the date that production must begin, resulting in costly overtime for construction workers.

☐ Neglecting to determine precisely if any suggested modifications of the building under construction are *really* necessary and required to minimize additional costs later.

☐ Skimping on construction materials which later hampers expansion—for example, putting in a 6-inch drainage line when an 8-inch line would cost only slightly more.

From their own experience—some both bitter and expensive—in adding new plants, management people in the surveyed companies offer this specific advice on how to avoid common pitfalls:

- Don't forget to make provision in your layout for new equipment under development but not yet available.—*Metal parts producer*

- Try to avoid cost-plus contracts and escalators, and get back to firm bids.—*Paper producer*

- Select a reliable engineering contractor, and have your company engineers coordinate and check all work in progress, including subcontractors. It'll save you money.—*Metal parts manufacturer*

- Keep a tight rein on the local architect. Don't let him build you a monument to his own artistry.—*Producer of hand tools*

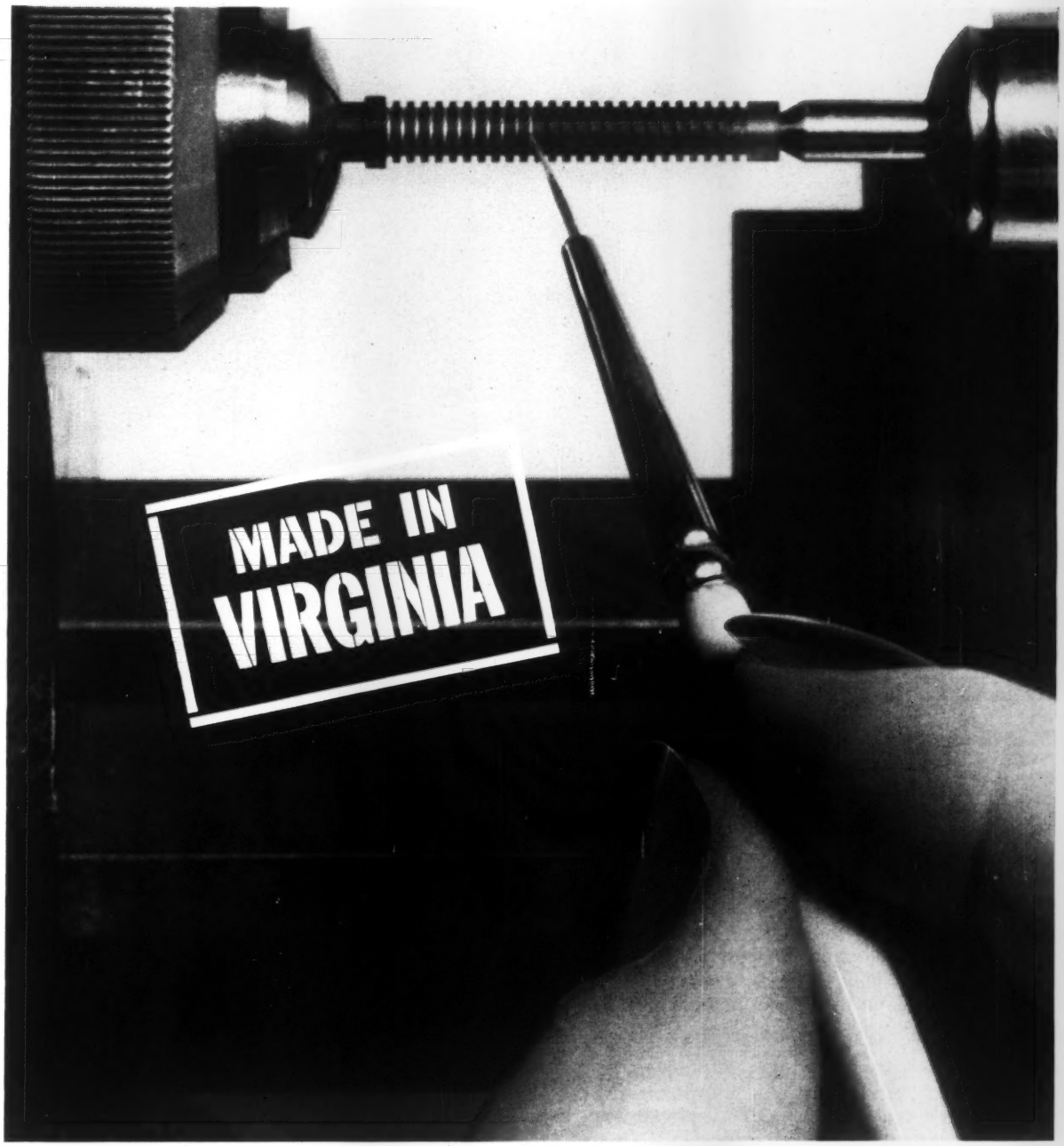
- Make sure that *all* specifications are clear and thoroughly understood before you sign the construction contract, for extras can be very expensive. Complete drawings and specs should be available beforehand.—*Electronic controls maker*

- Plan far in advance of the actual construction by preparing three-dimensional plant layout in exact scale, including scale models of all equipment and facilities in their proper location. Encourage all levels of factory supervision to study this periodically for recommendations.—*Materials handling equipment manufacturer*

- Make sure you have good planning before the engineering work is done; thorough specifications as the result of engineering; and enough company people to observe and analyze during actual construction.—*Greeting cards producer*

- Thoroughly investigate all new construction materials, methods, and types for possible saving in construction costs by departing from the conventional. Work in all the latest bulk material storing and handling devices for more efficient use of the new plant area.—*Diversified company*

- Engage a consulting engineer to act as your agent with both the architect and the contractors. This helps insure that building specifications will be met and that the many steps in internal planning will be taken.—*Manufacturer of razor blades*



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This is the hand of a Virginia worker "painting" in an electric circuit *one ten thousandth* of an inch thick! Technical adaptability of Virginia man and woman power is helping the electronics industry grow far faster here than in the nation as a whole.

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TELECONTROL, for either single or multi-shift operation, consists of only three basic elements—

. . . (left) a control and signal box at each production station (or machine) relays production information and serves as a point from which . . .

. . . (center) production supervisors, with belt-carried telephones, have direct communication with . . .

. . . (right) the control center. Here, separate panels for each production station indicate operating condition, production time, downtime, pieces produced, and balance left. An intercom system ties in the entire plant.

how to cut your hidden

TELECONTROL*—a management tool—Saves more than its cost in first 12 months

Telecontrol uncovers and cuts the big hidden costs in your plant . . . the unproductive time of your operators, supervisors, materials handlers, timekeepers, etc. It does this—AT LOW COST—by providing the complete communications and continuous centralized data recording needed for efficient use of manpower. In every installation to date, TELECONTROL has proven that it can pay for itself in less than 12 months.

Here are some of the things Telecontrol will do for you:

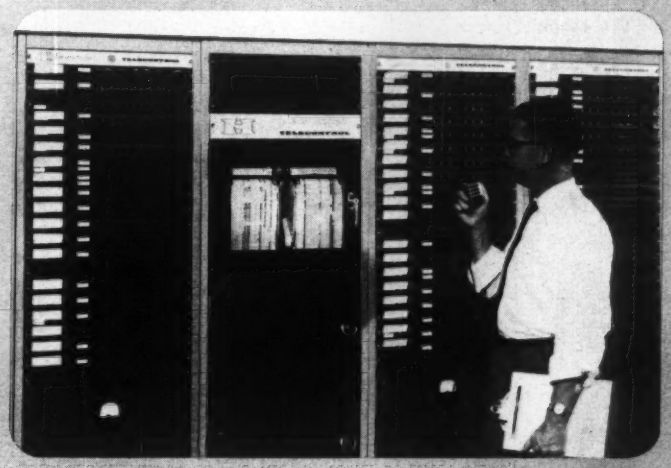
SIMPLIFIES PLANT MANAGEMENT—With Telecontrol you can watch what is going on at every station in the plant—which are "down" and why, which are okay. Telecontrol gives management, at any moment, complete data on manpower and machine utilization; helps management to forecast machine and personnel requirements, expedite handling of orders and shipments, control inventories, etc.

CUTS DOWNTIME—When something goes wrong, the operator flips a switch on a control box at his station. Within seconds, the foreman, directed by the control center over the public address system, is on the scene and tools, stock, or service, etc. can be dispatched without lost time. If necessary, he can discuss problems with control center by intercom. Telecontrol can anticipate when operators can be shifted to different jobs.

CUTS SUPERVISORY COSTS—Foremen are always where needed when needed. Operators don't have to go looking for them. Telecontrol helps the foreman anticipate needs. He can make and get decisions on the spot. Time-consuming record keeping by foremen is also eliminated.

CUTS MATERIALS HANDLING COSTS—Telecontrol watches the whole plant, dispatches the materials handler where needed, anticipates stock needs at each point.

CUTS TIMEKEEPING AND RECORD-KEEPING COSTS—Telecontrol takes the timekeeper off the floor. It brings him all the information he needs—fast, accurately and up-to-the-minute. Production data for each station is taken from Telecontrol panels—usually on five-channel punched tape. Simplifies and cuts costs in accounting, planning and purchasing.



Industries to which TELECONTROL is readily adaptable include:

- †Appliance Manufacturing (major)
- †Appliance Manufacturing (small)
- †Automotive
- †Electrical Manufacturing
- †Foil Printing
- †Paper Processing
- Machinery, except electrical
- †Metal Parts Fabrication
- †Molded Plastic Forming
- Publishing
- Textile
- †Tool Manufacture

†Indicates installations already in use

unproductive labor costs

A TYPICAL CASE HISTORY

Type of plant..... metals fabricating
No. of employees..... 300
TELECONTROL equipment cost... $68,800
1st year savings:
in indirect labor costs..... $82,550
in downtime..... $16,750
plus many indirect savings

CUTS INVENTORY COSTS—through more efficient scheduling. Eliminates over-runs and under-runs by signalling when the end of a run is approaching. Aids in fast rescheduling of jobs on the basis of machine loads.

CUTS SET-UP TIME—Telecontrol warns in advance when machines will be ready for set-up. Tools and set-up men can be prescheduled to the job. Also signals when machine is ready to run again.

HELPS ON PRODUCTION STANDARDS—Permanently charts every operation on any desired machine or at any assembly point. Provides permanent records to simplify setting and maintaining of realistic production standards.

The story of Telecontrol's amazing effectiveness in cutting hidden costs is one every executive with over 200 employees should know. May we tell you that story?

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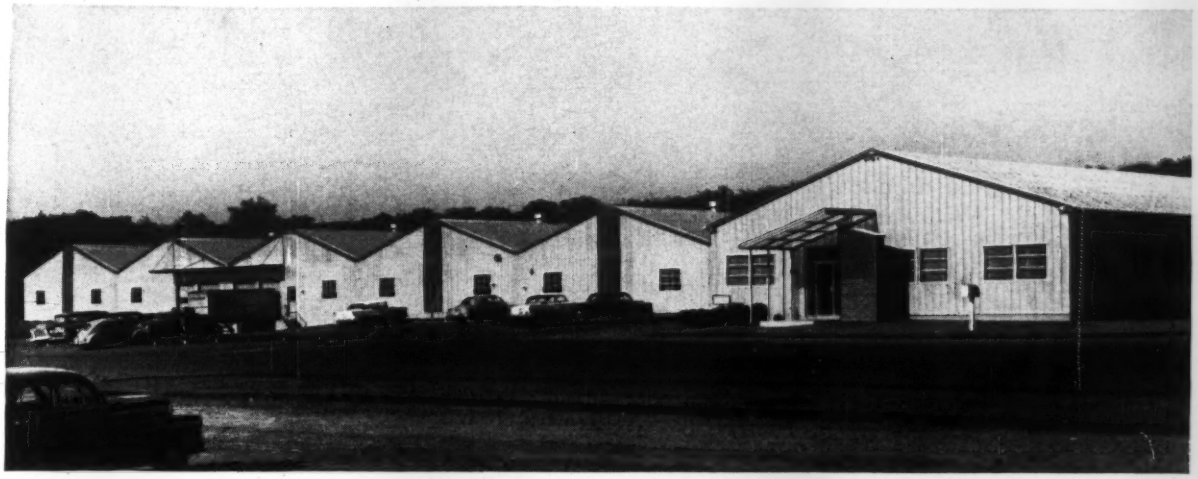
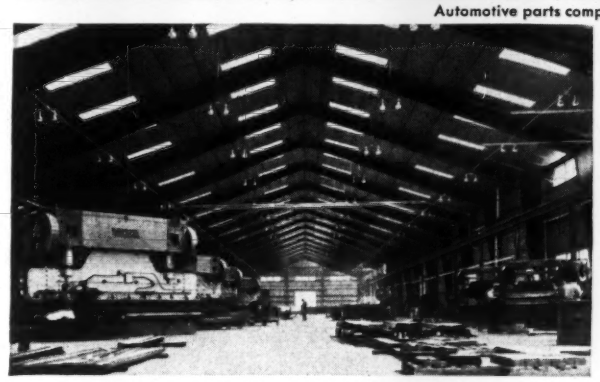


Automotive parts company in Branford, Conn.



A large metal fabricating plant in Toronto, Canada

A shoe factory in Pittsfield, New Hampshire

INDIVIDUALLY ENGINEERED . . . *yet each was created with pre-engineered Butler components!*

The metal fabricating plant, the shoe factory, and the automotive parts manufacturing plant pictured above, clearly demonstrate the design latitude Butler building components offer.

Each of these facilities presented engineers with vastly different space and load problems. Yet, in each case, Butler pre-engineered components were chosen for the basic structures.

Why? Because the wide variety of Butler components—available from stock—enabled each engineer to design a facility that fitted his exact needs. Equally important, Butler pre-engineered components eliminated much routine engineering—helped create a superior quality facility—quickly and economically.

Butler's clear-span, truss-free design provided spacious, column-free floor space, plenty of unobstructed overhead space for the installation of utilities, conveyors and other equipment. The buildings are easy to ventilate, illuminate, and are economical to cool or heat.

Pre-engineered, precision-made Butler components permit fast assembly, save weeks—even months—of planning and construction time.

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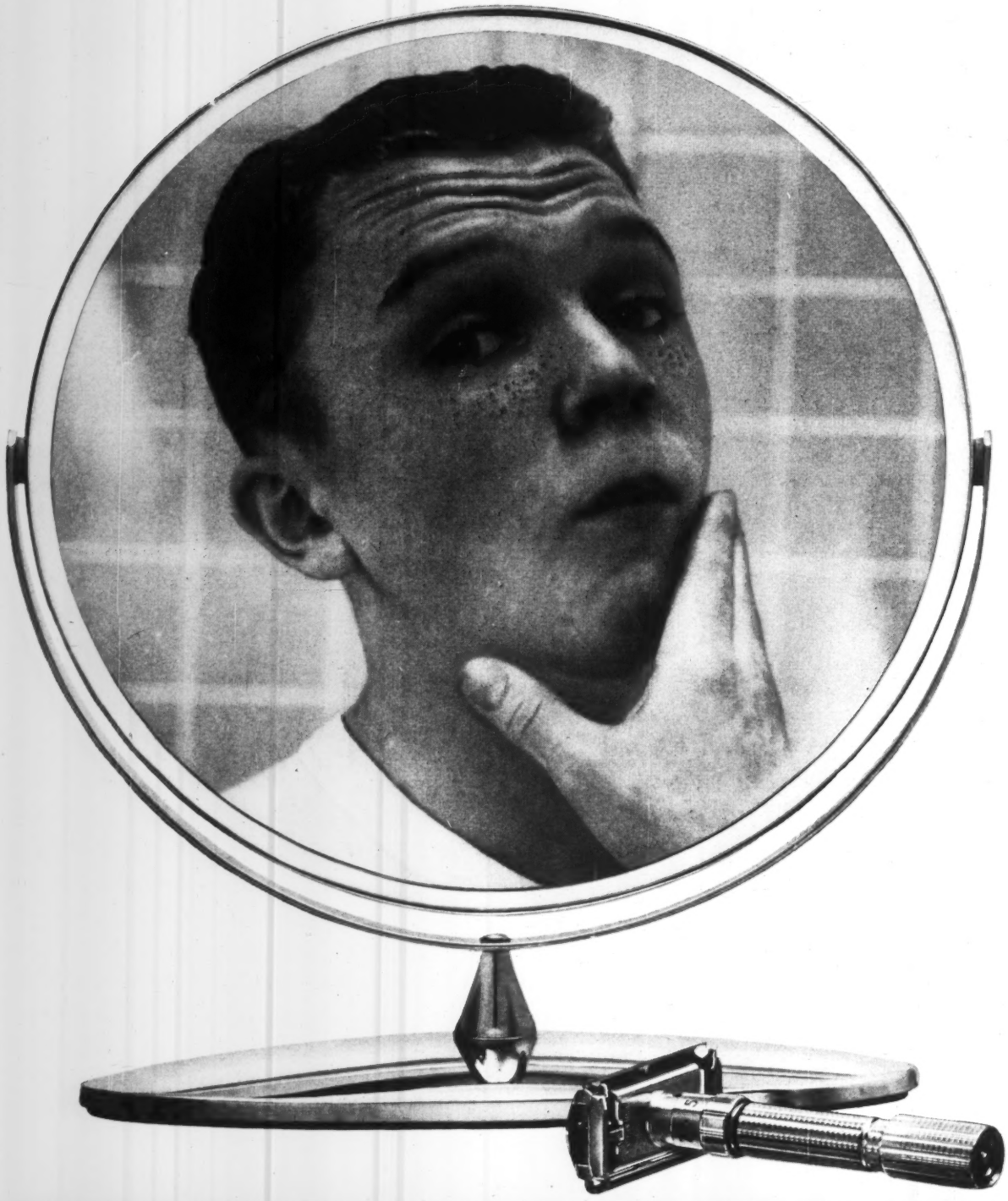
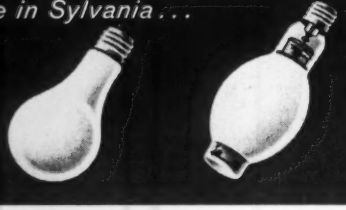


Discover the difference in Sylvania . . .

Sylvania light bulbs for the home are made by the company that pioneered many firsts in lighting.



Sylvania Silver White Mercury Lamps give you 16% more light than other types.

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"To keep America looking sharp— we shave our factory costs with Sylvania fluorescent lighting"

John X. Healey, Jr.
Vice President, Manufacturing
The Gillette Safety Razor Co.

Gillette's Number One position in the shaving field is based on the quality of its products. An important means of maintaining that quality is fluorescent factory lighting by Sylvania—the leader in lighting.

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To learn how Sylvania gives you more light at lower cost, write for your copy of free booklet, "How to make lighting a better tool for profits."

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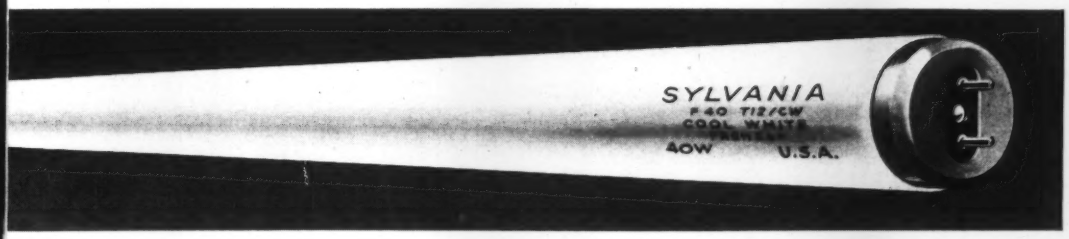
SYLVANIA... fastest growing name in sight



Sylvania Fluorescent lamps maintain more than 7% greater output throughout useful lamp life.

PLANNING TOMORROW'S PLANTS

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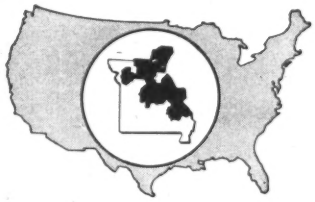

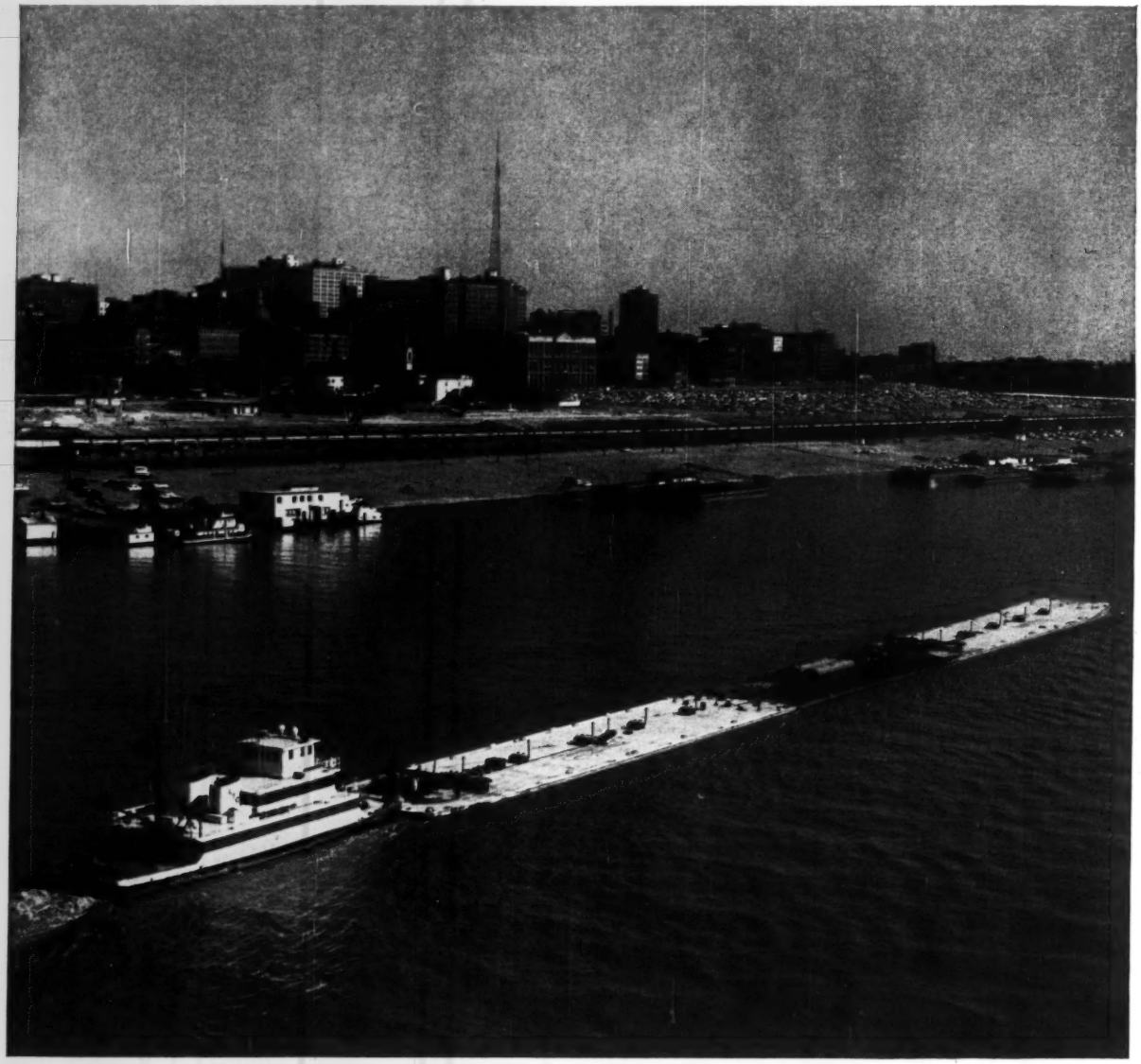

The mid-continent rivers make up the world's greatest inland waterway, connect 29 markets in 20 states.

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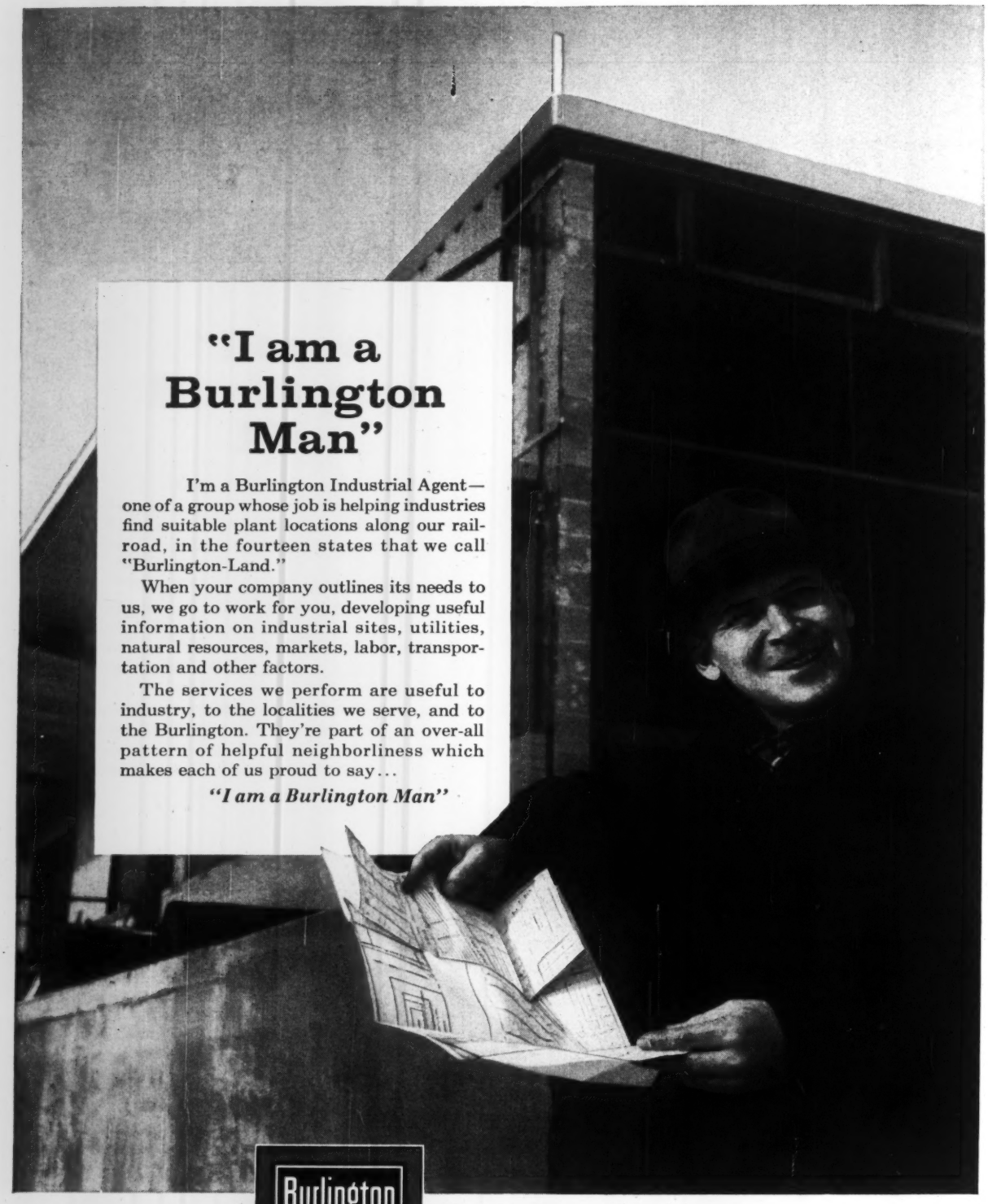

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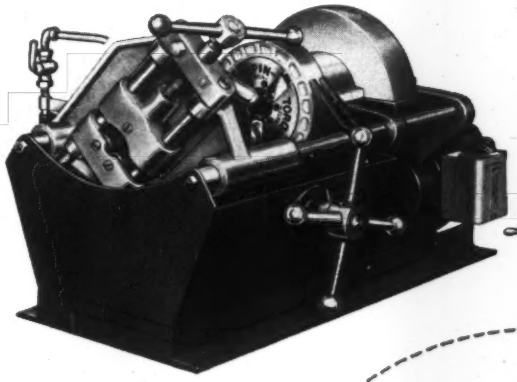
The Toledo Pipe Threading Machine Company's compact No. 999 pipe and bolt machine features instant change from cutting to threading, quick-change die heads. Cutler-Hammer Motor Control is supplied as original equipment.



Bridgeport Machines Inc. provides Cutler-Hammer Three-Star Motor Control as standard original equipment on their highly versatile Turret Milling Machines, which will mill, drill and bore, and, with attachments, will cherry, trace, and right angle mill.

Choice of the leaders ... the mark of better machines

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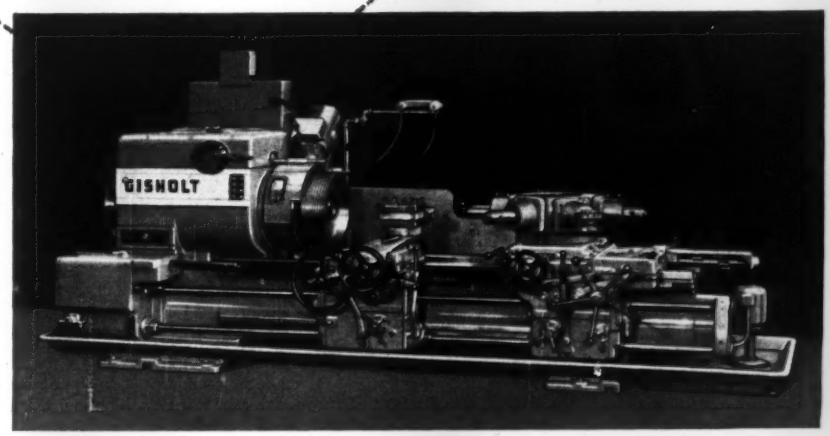
The Buffalo Forge Company's #15 Drill combines sensitivity for small hole drilling and rigidity for high volume production. Cutler-Hammer Motor Control is installed as original equipment.

A fine machine performs at its best when Cutler-Hammer Control directs and protects it. Cutler-Hammer Control installs easier, works better, lasts longer. For prompt attention to your control requirements write Dept. E270 Cutler-Hammer Inc., Milwaukee 1, Wisconsin.



The Gisholt Machine Company's MASTERLINE 4L Saddle Type High Production Turret Lathe shown above is equipped with Cutler-Hammer Control. Precise motor control simplifies machining of 21" vee-belt sheaves in two operations.

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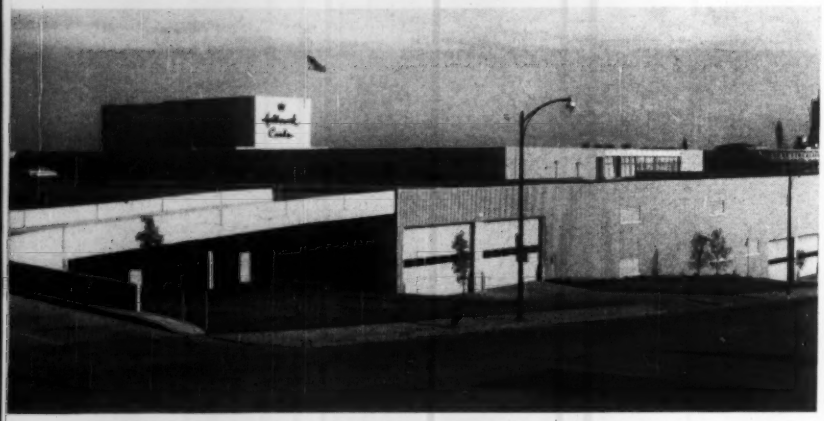

HALLMARK'S *unusual plant is built on the side of a hill. Most of the raw materials enter at the top, but for added production flexibility, can be brought in at three other levels. The executive entrance is shown at the bottom of the photo at the right.*

Making the Best of a Bad Site

WHEN THE president of Hallmark Cards, Inc., called in Welton Becket and Associates to design a new plant, the decision had already been made to expand into an unoccupied lot south of the original building.

However, a study by the architects showed that the area in question was not large enough to provide for future expansion, and a search for another site began.

The management of Hallmark had already decided that they had to stay in the Kansas City, Mo., area where all their skilled illustrators and printers live. Beyond room for expansion, they needed storage space for out-of-season greeting cards. This would allow them to put their highly seasonal business on a steady, year-round manufacturing basis.

As is often the case, the solution was staring them in the face. West of the plant was a steep hill. Hallmark had purchased the 7.5-acre site years before for a nominal sum. The architects began a one-year study of the site and of materials handling equipment that would suit it.

The result is a wedge-shaped structure built into the side of the hill, which was partially excavated at the lowest levels to make room for the power and air conditioning plants.

Bulky raw materials, such as ink and rolls of paper weighing thousands of pounds, are received at an entrance at the top of the hill. By gravity flow, the paper and ink are processed down to the final products, greeting cards and wrapping paper. At the second and third floors, the finished products are carried over a double-deck bridge spanning a busy thoroughfare by automatically controlled carts to the original building, which has been converted for storage and shipping. The bottom level contains the executive entrance.

The new building was designed around a three-dimensional materials-flow chart. Ribbon manufacture also was integrated into the new structure, making it possible for the company to abandon four smaller ribbon manufacturing plants on the outskirts of Kansas City.

Provision was made for expansion, and since the opening of the building some months ago, another half-floor has been added on top of the upper level. The rest of the roof remains a parking area, with space provided for 400 cars.

Light levels within the plant, which is completely air conditioned, have been set at a high minimum of 75 foot-candles, while the levels in the studio are 100 foot-candles.

Although the trend is toward single-story plant construction, the Hallmark plant shows that the multi-story approach, brought up to date, still has its advantages.

INSIDE THE *double-deck bridge connecting the new plant with the old building, which has been converted into a storage and shipping area, electronically controlled trucks run completed goods from plant to shipping departments.*

How Bostitch Made Its Move

A NEW PLANT in a new location was in order when Bostitch, Inc., found it was unable to expand to gain more production and to add more profitable lines.

The new plant had to be flexible enough to handle continuous runs of three-dollar desk-top staplers as well as job-shop production of $50,000 container machines. The need to produce heavy machinery practically dictated single-story construction.

Unlike many companies, Bostitch didn't wait until after the site had been selected to call in the architects. They let the experienced architect help pick the site. By remaining in the background and allowing the architect to shop for the site, Bostitch reasoned that the price would not be inflated. This maneuver paid off because the architect was able to purchase an excellent site at about a fourth the price that might have been asked if the company had made the bid.

The architect, Charles E. Main of Boston, had the following instructions on site selection: It had to be within a 50-mile radius of the existing plant at Pawcatuck, Conn., but not beyond Providence, R.I. Fifty miles was considered the limit for commuting, and traffic through Providence is difficult. A site in East Greenwich, R.I., met these requirements.

The company made provisions for employees who lived near the old location. Any employee who moved closer to the new plant received a moving allowance of $125, equivalent to the average cost of moving six rooms of furniture. About 40 out of 650 employees have taken advantage of the allowance so far by moving to within twenty miles of the new site.

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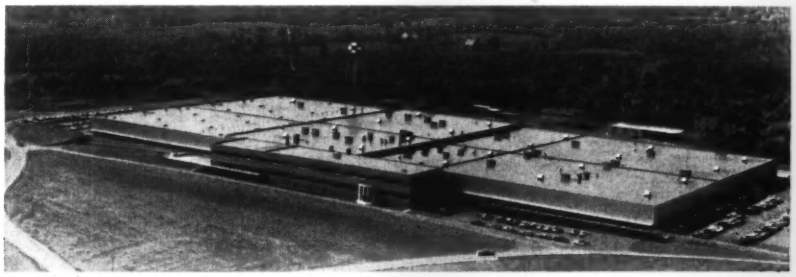
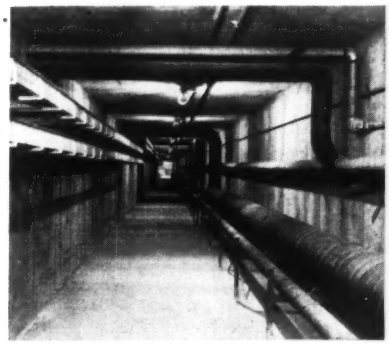
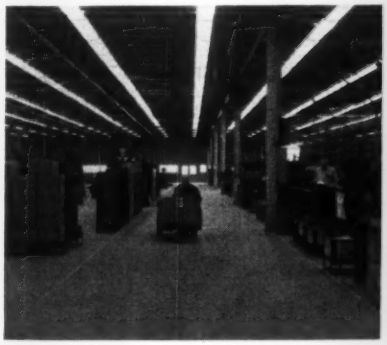


FIRE EXTINGUISHER: *The plant covers only ten acres out of an 82-acre site. The power plant is 150 feet away to provide for expansion. The entire roof of the new Bostitch plant is a giant fire water catchment which drains into a nearby reservoir.*



UNDERGROUND MOVEMENT: *Running from the power plant under the waist of the plant, this utility tunnel has plenty of room for additional service lines.*



INTERNAL EXPANSION: *Part of the room for internal expansion is in extra-wide aisles. Notice, too, the liberal use of fluorescent lighting to give high light levels.*

YODER

Roll Forming Equipment—Product dependability—integrity of manufacture—engineering for specific production needs have all contributed to establish Yoder equipment as the industry standard of excellence. Since 1909 Yoder-built machinery, including Pipe and Tube Mills, Roll Forming Equipment and Rotary Slitters, have earned world-wide customer satisfaction and recognition.

Profit from Yoder's years of engineering and service experience. Send today for the illustrated Yoder Roll Forming Equipment Book.

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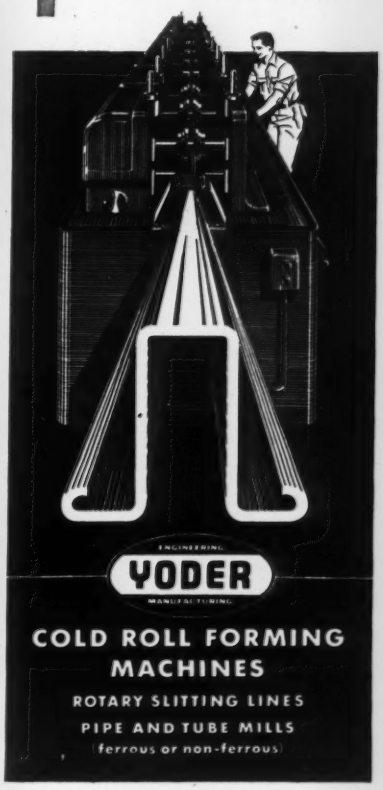
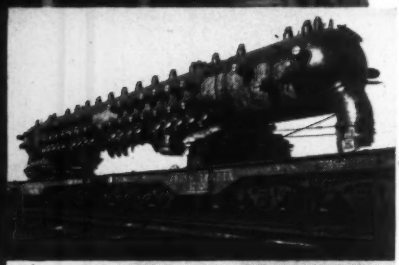
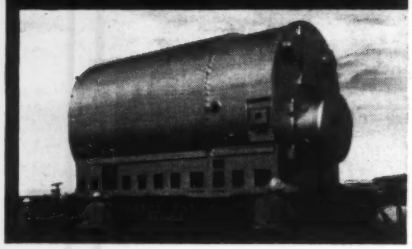


THE "UNCOMMON" PROVES A TRUE "COMMON CARRIER"





Most shipments are handled with everyday ease. But from time to time shippers come to us with problems in transporting "the unusual."

Our freight experts enjoy the challenge of these unusual shipments. Here is proof that Union Pacific is a true "common carrier"—we will handle any shipment sent our way.

You need not wait until you are stymied by a problem shipment, to ask our help in your shipping. Transporting your products smoothly across the West is a business we do well. Call any of our traffic offices for a freight expert to work with you.

UNION PACIFIC *Railroad*

OMAHA 2, NEBRASKA

TALL CARRIER: *This monorail fork-lift has greatly decreased the storage requirements for outgoing goods and has proved as flexible as regular fork-lift trucks.*

All employees who continued to commute from the old location also received $1.25 per day traveling expenses for the first six months after the new plant opened. Three hundred employees took advantage of this travel allowance.

The plant equipment was moved department by department to the new site. During the move, President Emmet G. Gardner himself saw to it that no department was out of commission more than a week.

A number of provisions—both internal and external—were made for expansion. The aisles between departments are extra-wide, offering cheap, easily-gained room. Plant walls on three sides are non-load bearing and can be knocked out at minimum cost. The power plant is set 150 feet back so that it will not impede future growth. Service lines from the power house are brought in through an underground tunnel (see photo, page 79).

Shipping cartons are stored on a mezzanine and moved down by chutes to packing areas. All shipments are made by truck, thereby eliminating the need for a rail siding at the plant.

case studies continued on page 85

Now—electronic dictation comes of age
through McGraw-Edison's inventive heritage!

Take the mike...

see how the **new M-E VOICEWRITER**
helps you break through the "time-barrier"
to new success!

You'll take the mike . . . dictate . . . and suddenly you'll realize that electronic dictation has come of age . . . that any other dictating method is now old-fashioned!

You'll see how 70 years of experience in office correspondence . . . plus McGraw-Edison continuing research . . . have made this M-E VOICEWRITER the finest dictating instrument ever built. Its features? All you would expect to find in the finest . . . and then some!

Think we've exaggerated? We offer you a friendly challenge to "take the mike"—see for yourself! Contact your nearby Edison VOICEWRITER representative now . . . or write us at the address below. Once you take the mike . . . *your* talk will be our best sales talk!

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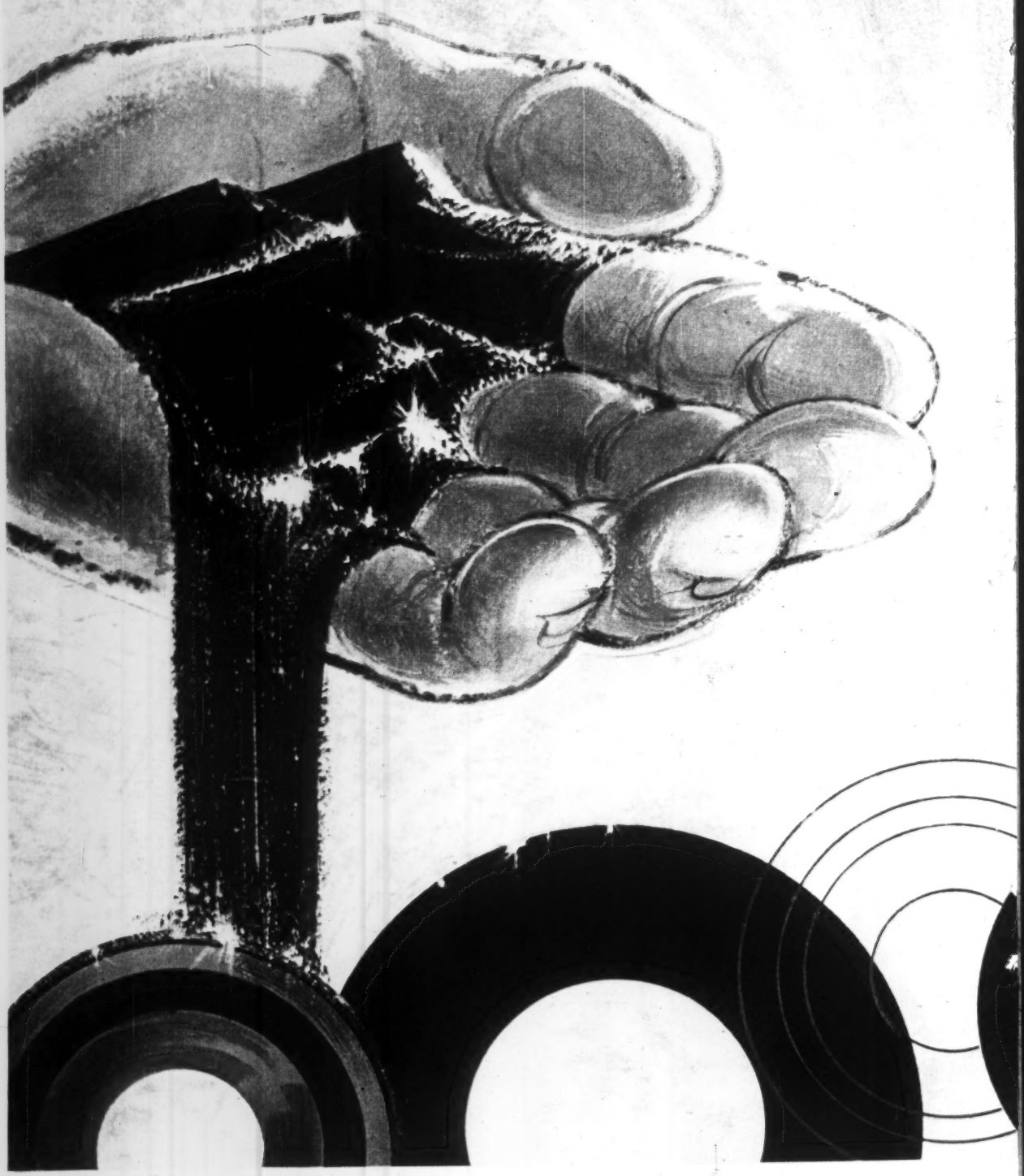
McGRAW EDISON

Metallurgical Memo from General Electric



How G-E man-made industrial diamonds improve on nature's best

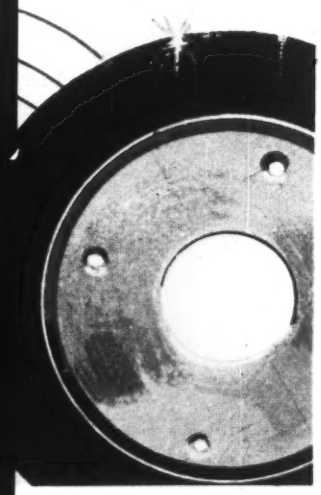
Metallurgical Products Department reports on a manufacturing breakthrough that ends dependence on nature's supplies . . . promises new efficiency in almost limitless areas

Man-made diamonds are a reality.

They were developed and are being manufactured *in quantity* by General Electric, and grinding wheels containing G-E man-made diamonds are available from your regular supplier. Used in grinding wheels, they out-perform natural diamonds by an average of 35%, while producing equal or better surface finishes. They have effected substantial production savings . . . and they have *ended* reliance on nature's supplies.

But this is only the beginning. General Electric is improving processes which will permit greater control of both size and crystal structure of man-made diamonds. These "tailor-made" diamonds will open the way for more efficient methods of grinding and cutting in a wide range of abrasive applications . . . make possible countless new uses that will mean better products at lower cost. Some of the products affected will probably be *yours!*

General Electric man-made diamonds are only one of the products of the Metallurgical Products Department. Like the others listed below, they have only one function: to help you make a better product — faster — at a profit. *Metallurgical Products Department of General Electric Company, 11179 E. 8 Mile Road, Detroit 32, Michigan.*



METALLURGICAL PRODUCTS DEPARTMENT

GENERAL ELECTRIC

CARBOLOY® CEMENTED CARBIDES • MAN-MADE DIAMONDS
MAGNETIC MATERIALS • THERMISTORS • THYRITE® • VACUUM-MELTED ALLOYS

AMERICAN CHICLE COMPANY cuts overhead, ends overtime with Burroughs Accounting Machines

High on the list of favorites at retail change counters are Chiclets, Dentyne, Clorets, Rolaids and other famous products of the American Chicle Company of Long Island City, New York.

To keep pace with ever increasing work loads and still hold expenses to a minimum, American Chicle Company processes all of its payrolls and governmental reports on Burroughs Sensimatic Accounting Machines. The firm finds that its Burroughs data processing equipment has been instrumental in the elimination of overtime and reduction of overhead.

"We have made significant savings with our new Burroughs equipment," states a spokesman for the American Chicle Co. "Since we converted to Burroughs Accounting Machines in January, all overtime has been eliminated at quarterly report time. And general payroll operations have been so speeded that we have been able to transfer at least two clerks to other work."

There you have it—another example of Burroughs data processing systems at work. And typical of the quick, impressive results that extend from Burroughs Accounting Machines to giant computers to benefit businesses large and small.

A demonstration will show you how to get new efficiency and economy with Burroughs. Just call our local branch office or write to Burroughs Corporation, Burroughs Division, Detroit 32, Michigan.

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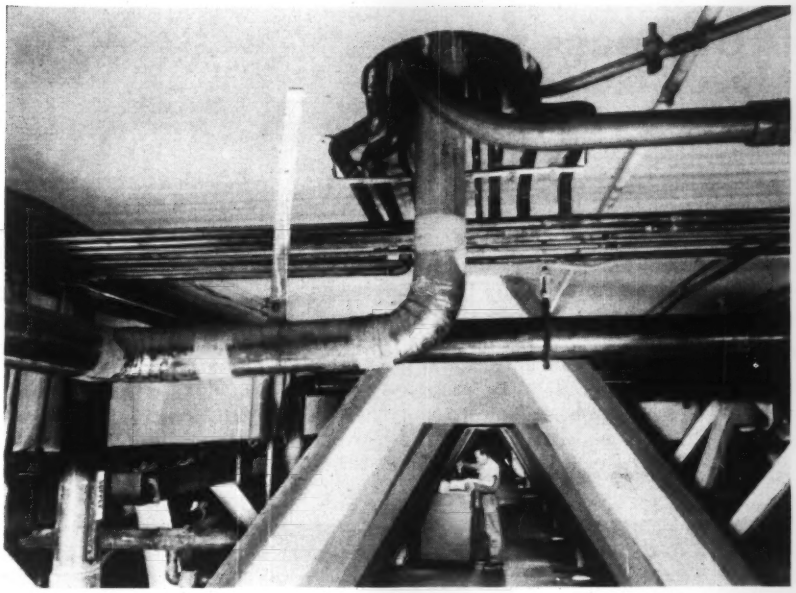
Burroughs

Burroughs Corporation

"NEW DIMENSIONS / in electronics and data processing systems"



THIS IS *the unusual utility "attic" through which sixteen services can be brought to any point on either manufacturing floor through 3,000 access holes. The concrete tetrapods that can also be seen support the upper floor and were precast on site.*

FLEXIBILITY, Unlimited

THE ELECTRONICS industry is changing so rapidly that it is practically impossible to pinpoint the plant requirements for a year or even for months ahead. As a result, some companies in this field have to provide for previously unheard-of flexibility.

One of the best examples is the new $5 million Texas Instruments, Inc. plant near Dallas. The upper floor is devoted to manufacturing, while the lower includes engineering, laboratories, and office space. Sandwiched between is a utility "attic" containing a network of sixteen electricity, gas, heat, vacuum, and air lines, with more being added.

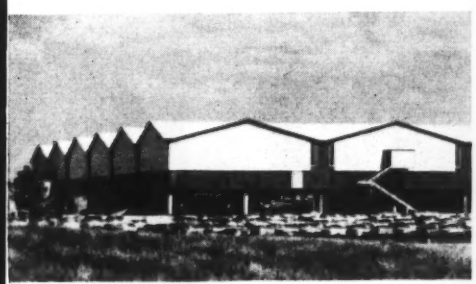
These services can be quickly brought to any point on either floor through manholes set every 10 feet in the floor of the upper story and the ceiling of the lower story. Although between-floors utility attics have been built into office buildings in the past, this is the first known use in a factory building. Doors to this attic are spaced at regular intervals around the outside so that heavy equipment can be brought in.

About 60,000 sq. ft. of the manufacturing level is sealed off and kept at 78°F and 20 per cent relative humidity. It meets the exceptional purity needs for final assembly of tiny diodes and transistors (see DR&MI, January 1959, page 44) and other miniature devices.

Roof design is unusual, too. The roof is made up of a series of 63-ft.-sq. concrete hyperbolic paraboloid umbrellas, poured in place. The tetrapod supports between floors were precast on site. The plant is built on the side of a hill, so that both floors can be entered from ground level at different points. Expansion has already begun on the downhill side.

Financing was from earnings plus a general purpose loan from an insurance company.

case studies continued on page 86



ROOF *of this Texas Instruments plant is composed of hyperbolic paraboloid sections.*

California Plant Site Information

Everything you want to know about plant sites in Metropolitan Oakland area, where 36 of America's top industrial manufacturers have plants, warehouses or division headquarters.

FREE! Write today for Free Factfile giving detailed information on distribution facilities, transportation, markets, raw materials, fuel, power, water climate, living conditions, attitude of local government. See for yourself why industries have invested $400,000,000 in new plants and expansions here since World War II. No obligation. Strictly confidential.

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PLANNING TOMORROW'S PLANTS

THE RIGHT ANSWER FOR LARGE PLANTS OR SMALL

Another typical example of how Palletainers conserve floor space in busy produce warehouse.

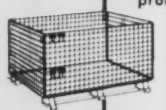
USP

PALLETAINERS

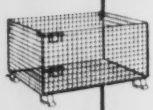
Why pay a premium for wasted floor space when you can make it do double, triple duty by simply storing, stacking or transporting your products or materials in USP Palletainers.

Palletainers are available in a wide range of sizes, types and styles to meet your needs. Engineered to handle light and fragile products, or heavy unit loads up to 6000 pounds each with perfect safety and full inventory visibility. They'll stack to the rafters and cut your shipping losses, too. And . . . when empty, they can be folded flat for space saving and lower return freight rates.

No matter what you manufacture — store or transport — in a large plant or small . . . You need Palletainers!

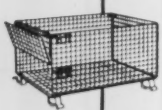


BEARING PLATE



HI LODE

WAREHOUSE



BULK LODE

Ask for your own copy of the big, new Palletainer catalog today. It's profusely illustrated with interesting money saving applications plus complete specifications and construction details.

UNION STEEL PRODUCTS CO.
ALBION MICHIGAN

"Business as Usual During Repairs"

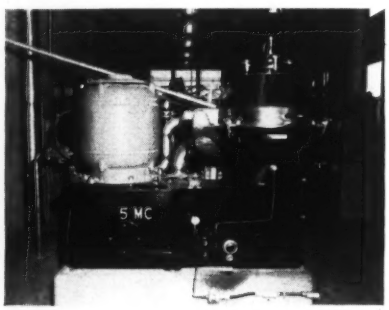
HOW DOES a company build a new plant around an old one, integrate a new process at the same time, and still not lose any production? The successful solution at the Argo (Ill.) Works of The Corn Products Company, was systematic replacement of eight floors full of old, bulky, processing equipment with the latest, compact, automatically-controlled machinery, neatly arranged on one and a half floors. The six useless empty levels were then removed by wrecking crews. All this without the loss of a single day's vital production!

True, it would have been easier and quicker to build a completely new plant. But the interdependence of the building in question with the other parts of the plant complex that converts corn into starch and other industrial and agricultural products required that the building stay just where it had been for nearly 50 years.

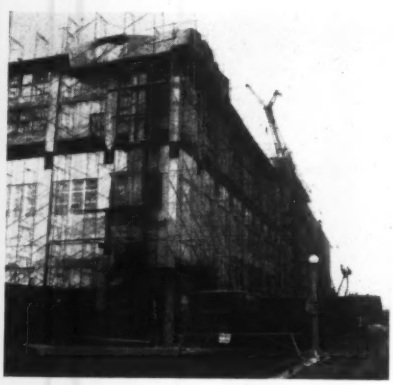
Other benefits were gained from the difficult renovation. Although the old equipment for separating protein from starch took care of all production needs, some added capacity was gained for possible future needs. The three-shift labor force was cut by nearly 75 per cent, and product quality was improved. In addition, the new equipment runs on 60-cycle current, another step forward in converting the entire complex from more costly 25-cycle service. Since the project was phased over a long period, all displaced men were retrained for other jobs.

Finally, the original cause of the multi-million-dollar, three-year facelifting has been eliminated. The separation process has been enclosed, so that the corrosive fumes that formerly rotted away steel structure have been eliminated.

BEFORE: *Starch was formerly separated from protein in seven stories of open tanks.*



AFTER: *One level of the latest centrifugal separators now does the same job.*



WHILE *the lower two floors were still in production, the upper six levels were removed by wrecking crews.*

Another case

Rebuilding a plant without losing any production is not a unique situation. At Carborundum's Monofrax plant in Falconer, N.Y., the Planet Corp., engineers, tripled capacity, mechanized production, and installed a materials handling system in an existing plant without disturbing production. In the process, the flow of materials was completely reversed.

—MELVIN MANDELL

Speaking of WATER for Industry...

of the nation's 51 principal rivers, 6 flow in the Land of Plenty — where rainfall is 30% above the national average

The Ohio, James, New, Roanoke, Scioto, and Potomac Rivers — 6 of the 51 large enough to be classified as principal U. S. Rivers by *Statistical Abstract of the United States* — furnish good industrial water to many large, medium and small industries in *The Land of Plenty.*

In addition, rivers of secondary size used by industry include the Elizabeth, Nansemond, Appomattox, Dan, Bannister, Pigg, Smith, Shenandoah, Bluestone, Mayo, Holston, Big Sandy and others. In fact, in *The Land of Plenty*, there are 6000 sq. miles of inland surface waters.

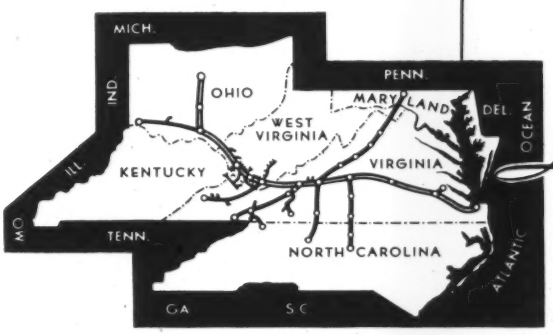
U. S. Weather Bureau figures show rainfall in *The Land of Plenty* to be about 30% above the national average. The U. S. annual rainfall averages 31-36 inches, while that of *The Land of Plenty* is 40-45 inches. And not one of the six states in this region has a lower annual rainfall than the national average.

Let Norfolk and Western plant location specialists tell you about water and other industrial advantages in *The Land of Plenty.* There's no obligation, and all inquiries are kept confidential.

All figures from *Sales Management's 1957 Survey of Buying Power* and *Statistical Abstract of the United States.*

RESOURCES OF THE LAND OF PLENTY

MARKET: There are 74,066,000 people in The Land of Plenty and the states directly bordering it and 1957 retail sales in this market were almost 41% of the U. S. total. ***RAW MATERIALS:*** World's finest all-purpose Bituminous Coal . . . multi-million-ton deposits of Dolomitic limestone and Calcium Carbonate limestone (over 97.7% pure), some in mineable thicknesses of over 100 feet . . . manganese, silica, clays, brines and varied other mineral, forest and farm materials. ***POWER:*** Total installed generating capacity of over 21 million kilowatts — over 1/6 of the U. S. total — and more on the way. Low rates. ***MANPOWER:*** Civilian work force of over 8,151,000; 2,650,000 in manufacturing, 1,485,000 in wholesaling and retailing . . . adaptable, home-rooted people with proven high production records; good supply of young workers constantly coming into the market. ***TRANSPORTATION:*** Modern and dependable rail service by Norfolk and Western Railway. The N&W has more freight cars per mile of track than any other U. S. railroad 250 miles or more in length; and when dieselization is complete in early 1960, the N&W will have the newest and most modern fleet of locomotives in the railroad industry. ***SEAPORT:*** Factories and warehouses in The Land of Plenty have access to world markets and sources via the big port of Norfolk on Hampton Roads, one of the best-equipped in the nation.



Write, Wire or Call:

L. E. Ward, Jr., Manager
Industrial and Agricultural Dept.
Drawer DR-810 (Phone DIamond 4-1451, Ext. 474)
Norfolk and Western Railway
Roanoke, Virginia

Locate IN THE LAND OF PLENTY — THE 6 GREAT STATES SERVED BY

Norfolk and Western RAILWAY

For quick, competent assistance on shipping problems — talk with the N&W freight traffic Sales and Service representative nearest you . . . in one of 39 key cities across the U. S.

Fast-Moving Developments Make FLEXIBILITY the Keynote of DYNAMIC PLANT DESIGN

Here's a specific step-by-step guide to the objectives that management must meet to get the best plant for the least money.

WHEN MANAGEMENT decides to put money into a new plant, it must deal with two vital considerations. They are:

- The importance of maximum flexibility in design and layout to allow for new engineering developments and changes in the product mix.
- The need to see the physical plant as a whole—from receiving, through processing, and on to shipping—while at the same time, balancing the best interest of sales, distribution, finance, and other management groups. This, of course, involves the sticky problem of just how much expansibility should be built into the new plant.

Industrial engineering thinking should be brought to bear on both these points very early in the planning stage. This is best done by drawing on the company's own industrial engineering department or by supplementing the department's thinking with specialized statistical engineering analysis or with advice from outside professionals with experience in other types of operations.

The top management in many companies seems to think that the industrial engineering department should only be concerned with methods and standards and incentives after the plant is built. But the background and type of analysis with which industrial engineers solve their technical problems furnish the very kind of thinking by which probabilities should be weighed, alternatives balanced, and final management decisions reached in the new factory program.

This chart pinpoints the specific areas in which industrial engineering can make a dynamic contribution to a new plant program. Many of the considerations involved in achieving one goal will, of course, affect others. The final picture will be an optimum balance of the various choices.

This checklist is limited to decisions on plant design. It assumes that underlying analyses have been made on such points as products, markets, and location. The checklist applies specifically to general manufacturing—metal-working, fabricating, and the like—rather than to process industries, although the concepts (with some changes in emphasis) would apply there also.

One such combined effort is now under way at the Jones & Lamson Machine Company, Springfield, Vt. The purpose is to reduce the excessive costs of job-lot manufacture by using new automatic and numerically controlled equipment, combined with new mathematical and statistical techniques. This project may well lead to a sweeping change in job-shop costs. At Jones & Lamson, an unusually large industrial engineering effort is being made well in advance of any commitments for new plant and equipment.

The prime objective in building a new plant is to reach the best balance between investment and operating

continued on page 123

This information on plant design was provided by J. Henry Parker, vice president of Rath & Strong, Inc., industrial consultants of Boston, Mass.

✓ Where To achieve these goals . . .	
1	Best balance between fixed investment and operating cost
2	Speed and economy through selective work flow
3	Flexibility in equipment layout
4	Fast, integrated materials handling
5	Low-cost maintenance
6	Most economical provisions for expansion

Industrial Engineering Thinking Enters DYNAMIC PLANT DESIGN

. . . check into these problems . . .	. . . by tackling these questions . . .	. . . and watching these trends:
Should operations be evened out by planned inventory peaks? Do expected volume and stability in design justify special-purpose equipment or extensive automation? Will availability of capital permit increasing fixed cost investment to achieve lower operating cost?	How do reduced set-up and indirect costs of long runs compare with higher inventory carrying costs? What economies are possible in subcontracting certain parts and components? Have you put expected savings from alternative plans on a comparable basis—e.g., "present worth"?	More widespread use of scientific determination of capital involvement. . . More choices in special-purpose vs. general-purpose equipment. . . More refined methods of determining optimum inventory levels for lowest net operating costs, rather than attempting to minimize inventory levels.
Are there wide variations in equipment layout, and planning requirements for parts and components? Are certain low-volume items "troublemakers" in terms of high cost and interruptions of work flow? Do you have a problem of balancing intermittent and continuous runs?	Should a statistical analysis of parts movements and operations requirements be undertaken to pinpoint the costly few? What operations sequence for these costly few will pay out by improving the work flow for others? What are most economical lots and stock cushions for all items?	More widespread use of statistical and mathematical techniques to all manufacturing problems. . . Greater tendency to design layouts to run a family of parts down a single production line.
Are economies of runs on special-purpose equipment achieved at a loss of versatility? How easily can equipment substitutions be made for run changeovers? What provisions are there for later extensions of automation?	What are the opportunties for economies by bringing machines to the work, rather than work to machines? Will flexibility be increased by use of "pull-in, pull-out" equipment? Have opportunities for tape-controlled machines been investigated as a means of flexible automation?	More attachments and auxiliaries for machines to increase versatility. . . At the same time, more and more special-purpose equipment. . . Increased application of tape-operated equipment for small runs. . . More types of controls that will make possible lower operator skills.
Have recurring delays been due to poor handling? Will automatic conveyerization or truck trains help? Will customer acceptance of unit palletized loads and/or a different form of packaging by suppliers cut handling costs? Can the percentage utilization of storage cubage be increased?	Will more automatic handling reduce the labor ratio in handling? What will an investment and operating-cost analysis show on balance? For your special needs—height and power of lift, maneuverability, palletization, and so on—has a factor-by-factor comparison chart been drawn up for available equipment?	Great strides since the war in more capacity, flexibility, and maneuverability of equipment. . . About one-third of workforce required for given amount of handling compared with fifteen years ago. . . High-lift trucks mean about one-third more effective use of overhead space. . . Increased use of electronic controls and automation.
What are your maintenance costs? What has been the trend in the ratio of maintenance labor to direct labor? Is everything possible being done to cut maintenance labor time—ease of access to equipment, strategic spotting of maintenance depots, and so on?	Are building design and equipment choices giving due emphasis to probable maintenance charges? Are time standards and unit costs being developed for building upkeep: cleaning and maintenance for such items as window areas, types of walls, floors and partitions, and lighting fixtures?	More attention to maintenance as increased automation raises ratio of maintenance to direct labor. . . More pull-out of sections of complex equipment and substitution of good units, on modular principle. . . More application of performance standards to maintenance.
What are the volume expectations forming the basis of plant design? Where in the work flow will the critical volume areas be? Can the structure be designed on the modular principle, with minimum immediate investment in excess space?	What does a detailed analysis of product-line specifications and trends indicate as to later changes in processes, materials, and so on? What building provisions are called for? How will modular expansion influence site selection, spotting of sidings, power facilities, and so on?	Greater use of modular principle in factory building design (involving more attention to structural provisions for flexibility. . . Greater tendency toward fixed in-plant facilities for over-capacity. . . Greater use of modular principle for expanding capacity of machines.

New Light on Site Seeking

The conservation program goes ahead at new Kaiser Aluminum plant as tree seedings are planted.

A new DR&MI survey pinpoints what management is doing to find the one location that makes the most sense.

CHOOSING a location for a new company plant is one of the most crucial decisions facing top management today. Made intelligently, it may cut production and distribution costs 10 per cent or more—which means, in many highly competitive industries, that it can bring a company up from an also-ran to a leader. By the same token, the penalties of bad judgment in this area are heavier than almost anywhere else.

Top management's responsibility even includes the leg-work and fact-finding that precede any plant move. In almost every one of the 107 surveyed companies responsibility for investigating new plant locations is placed at the top management level—usually with a vice president.

In about 80 per cent of the companies, the work is carried out through a committee set up for the purpose—although many of the companies shun the term and prefer to label their groups "task forces" or "teams."

However, missing from these committees in most of the surveyed companies is the traffic manager, the man who knows most about what companies say is one of the most important factors in their plant location decisions—the cost of transportation of raw materials and products.

A new title which is appearing with increasing frequency—particularly in the larger companies—is "real estate manager."

Companies with a continuing need to choose new locations have made efforts to formalize the function. Rockwell Manufacturing Company (see page 92), for instance, has a vice president in charge of plant location. At National Gypsum Company the responsibility for investigating new plant locations is vested in a vice president in charge of expansion who cooperates with the operations division.

Management is becoming increasingly aware of the importance of examining the company's entire program of plant location. About one-third of the 107 surveyed companies have programs for regularly reviewing existing plant locations to make sure that they have not become disadvantageous.

These companies report that while a plant location may have been ideal several years ago, shifts in markets, changes in raw materials and product mix, deterioration of labor relations, and many other factors may have changed the situation entirely.

A critical look at each of the factors which affect the delivered price has helped several of the surveyed companies decide that their plants actually were poorly placed.

Some companies reveal that they refrain from conducting such studies for fear that they might supply grist for the plant rumor mill and result in poor morale and productivity.

Today, management's great expectations frequently are not fully real-

Managing the Good Earth

COMMUNITIES no longer need be embarrassed by the unsightly conditions of their industrial areas. Management is helping to eliminate these eyesores. For instance, at Kaiser Aluminum's new Ravenswood (W. Va.) Works, the company's "land management program" has turned unused farm land surrounding its plant into an attractive recreation area.

The plant occupies only 250 out of the more than 3,000 acres the company purchased with future expansion in mind. Kaiser hired a conservation expert to reclaim this fallow land. The program involves reforestation and conservation, the development of stocked artificial lakes for fishing, the cultivation of wildlife for hunting, and creation of a wildfowl refuge and a community picnic area.

ized. Says C. J. Faherty, second vice president of the Prudential Insurance Company of America: "Our studies are fairly advanced on the economies that may be effected by moving from one location to another. My experience has been that economies are not effected until two to five years after moving, and any medium-size company that is banking on the cash flow from these economies coming into its business immediately is making a serious mistake."

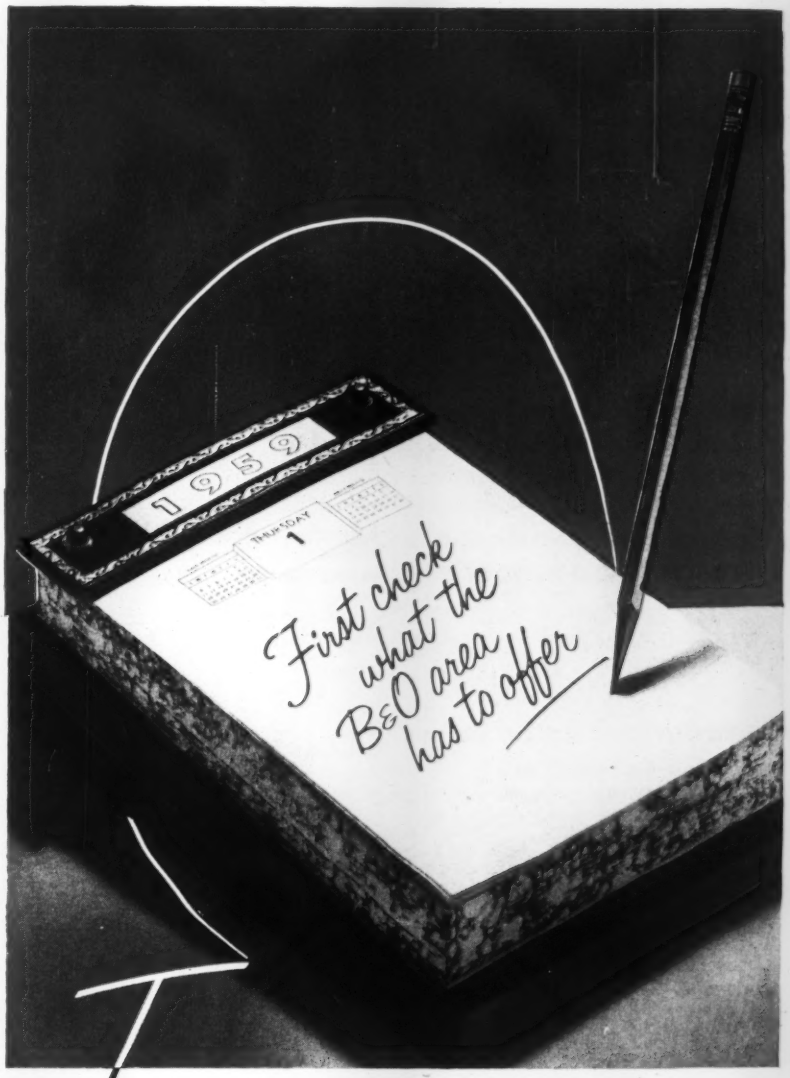
Judging from the survey findings, companies make a wide variety of mistakes in locating new plants. But most of the errors can be attributed to management's failure to consider, analytically and objectively, *all* the factors involved.

Among the other plant location pitfalls pinpointed by the surveyed companies are:

- Too much attention to land cost
- Hasty acceptance of "handouts" from local communities
- Underestimating the cost of moving
- Judging the potential labor supply in terms of wage rates, while neglecting productivity and work standards
- Moving to take advantage of short-term benefits

Many companies also run into

continued on page 104



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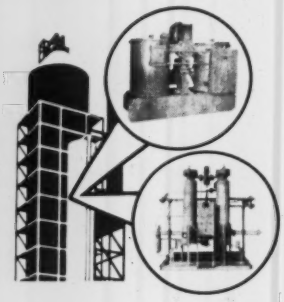

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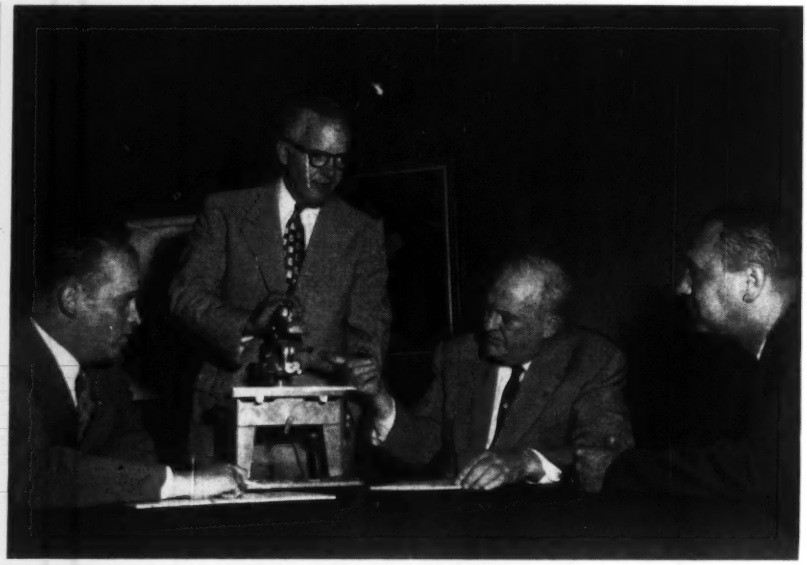


PLANT PLANNING *starts with the product at Rockwell Manufacturing Company. Here top management breaks down its radial saw into components to decide whether to build or expand facilities. In this huddle are Vice President L. A. Dixon, Jr.; President W. F. Rockwell, Jr.; Executive Vice President L. A. Dixon, and Vice President F. P. Maxwell.*

Rockwell's Formula: Small Plants in Small Towns

THERE ARE so many variables involved in plant location that a community offering a rich soil for one company may well be stony ground for another.

Rockwell Manufacturing Company of Pittsburgh, which operates 23 manufacturing plants in fifteen states, believes in relatively small plants located in small towns. The company in the last few years has established a half-dozen new plants in such towns as Kearney, Neb., and Russellville, Ky., and has expanded capacity by nearly 50 per cent. In doing so, it has developed a program for the systematic evaluation of plant sites.

Rockwell shuns larger industrial centers and boom towns in locating its plants because the company is geared to steady growth over the long pull. Says W. F. Rockwell, Jr., president: "We don't want to be just another factory to be tolerated, but a member of the community in which we operate—a cooperative citizen that's an integral part of community life. We believe this is more readily attainable in a town of 25,000 or fewer people than in one of a quarter-million or more."

Plant size is a major consideration, for Rockwell believes a small plant is more easily adaptable to a small town. The company sets the "optimum maximum" plant size at about 500 shop employees. "We don't want to run the town, and we don't want to be the dominant employer in a town in which we are located," says Rockwell.

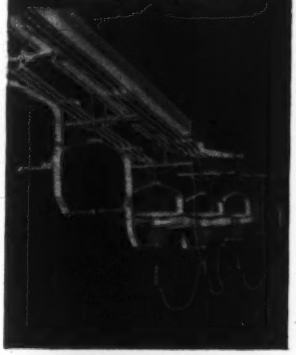
Generally, if the company's operations get bigger than the optimum size, a segment is split off, and a new plant set up. Rockwell feels that in a small town, plant productivity is higher, people are more compatible, and management is closer to the community.

Despite its own extensive experience in locating new plants, the company relies on a factory locating service organization to screen and check plant locations to meet Rockwell specifications. The company then collaborates in proving out the final choice by appraising transportation, labor

continued on page 112

Products by R-W designed to help you gear up for "profitable" production and expansion

MATERIALS HANDLING SYSTEMS . . . that utilize free overhead space speed-up production flow, improve materials handling methods and increase "net earnings." R-W offers a wide line of conveyor systems from the type that can be "self-assembled" by your plant personnel to complete, ultra-automatic conveyor systems engineered and installed by R-W . . . there's sure to be a type to meet your exact requirements.



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With the general trend of increased sales at lower "net earnings," industries of all types have to face the fact that increased sales, alone, are not the answer to a "profit-improvement." Production plants, from receiving through shipping, should be thoroughly inspected . . . costly procedures and handling methods that "eat-up" profits should be changed . . . antiquated equipment should be replaced with modern machines and systems.

R-W Overhead Material Handling Systems, Automatic Electric Operators and Industrial Doors are products designed for modern, high-speed production plants . . . products that offer dependable performance at continuous, peak efficiency. Whether you plan to build a new production plant or remodel present facilities, it will pay you to contact R-W and find out how these products for modern industry will help you achieve those desired higher net earnings.

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Companies on the lookout for new plant, warehouse, or laboratory sites may find the right spot in a "planned industrial district"—for some, a quick and tailor-made solution to a time-consuming and costly growth problem.

SIX YEARS AGO *a 1,200-acre raw tract ten minutes from downtown Dallas, today Brook Hollow Industrial Park can boast an impressive roster of 170 business occupants.*

Planned Industrial Districts: PACKAGED SITES FOR INDUSTRY

BEHIND SUCH fanciful names as Cynosure, Precision Park, Brickbottom Redevelopment, and Joe's Creek, as well as such workday handles as the New England Industrial Center, lies a major postwar development: the growth of the planned industrial district. Like the residential suburban development, it is a product of the postwar years.

The organized industrial district is increasingly becoming a practical answer to industry's search for more growth space, increased utility needs, and frequent desire for more decentralized operations. The rise of these districts in numbers and popularity also reflects, in many cases, a shift of marketing centers, changing distribution needs and patterns, a flight from congested or blighted areas, and such intangible advantages as "a better business climate."

Exactly how many industrial districts are now in operation (partially or fully) or under development in the United States is a difficult figure to pin down. For one thing, there is as yet no unanimous agreement on what an organized or planned industrial district is or what it should include—although some areas of substantial agreement are beginning to emerge.

In a study of organized districts made by the Office of Area Development of the U.S. Department of Commerce in 1954, the planned industrial district was defined as a tract of land subdivided and developed for the use of a community of industries, with streets, rail lead tracks, and utilities installed before sites are sold, and with restrictions and zoning laws provided to protect investments.

What's in a name?

Later attempts have been made to modify, extend, or refine this original definition. At the Dartmouth College Conference on Industrial Parks held last June by Arthur D. Little, Inc., and the New Hampshire State Planning and Development Commission, there was general agreement that continuous management was essential to a bona fide industrial park, that its minimum size might range anywhere from 80 to 500 acres, that it should offer compatibility among industries within the district and the outlying community, and that it should provide complete site readiness.

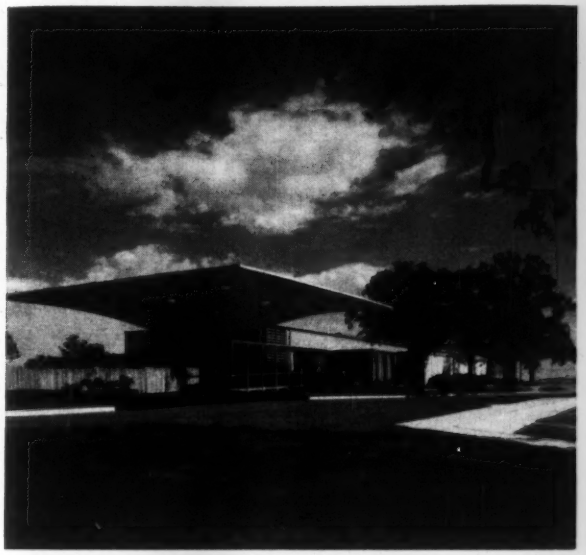
The growth of the industrial districts has almost tripled since the early '50's, according to two authoritative surveys. The Commerce Department study in 1954, uncovered 122 qualifying organized industrial districts, while a 1957 survey by the Stanford Research Institute turned up 302 similar districts, 98 of them established since 1955.

With less stringent definitions, estimates of the number of existing districts range much higher. *The 1959 Site Selection Handbook* lists 1,011 districts comprising 25 or more acres. (Some of these may, at this stage, be mere real estate promotion. Of those reporting both total acreage and unsold land—about 68 per cent of the respondents—four out of ten had not sold or leased a single acre at the survey date, and nearly another three out of ten had sold or leased less than half their total acreage.)

Every state (except Alaska) now has at least one organized industrial district of 25 or more acres, with Texas showing the highest concentration of districts—101 of them, or about 10 per cent of the nation's total.

Industrial districts, to date, have tended to grow fastest in vacant land near cities of phenomenal recent growth, such as Dallas, and in older

SMART DESIGN *is featured in new buildings going up in the Great Southwest Corp.'s 5,000-acre district, which is located midway between Dallas and Fort Worth, Texas.*



HYPERBOLIC PARABOLOID ROOF—*a cost-saving concrete shell —adds style to Club Southwest Crossroads Restaurant, typical of fringe services in the planned industrial district.*

communities, such as Lowell, Mass., as a community-sponsored effort to rehabilitate a depressed industrial area. According to Theodore K. Pasma, Industrial Location Chief of the Office of Area Development of the U.S. Department of Commerce, the planned districts are most useful in urban areas where good industrial sites are in demand, but where the sites are difficult to assemble or acquire and difficult to preserve against the encroachments of residential and commercial uses.

Two examples

Dallas is a typical growth city. It now has eighteen planned industrial districts (in addition to seventeen industrial areas that "just grew"). Two of these districts provide a picture of the national growth pattern and a forecast of what their future shape may be.

- Brook Hollow is generally viewed as a phenomenally successful planned industrial district. First organized in 1953, sections of its 1,200 acres of original farmland have been successively developed, under a careful over-all plan, pay-as-you-go basis, and rigid restrictions. In the four years of its existence, 170 companies have entered the district, with a total investment now of more than $60 million.

Outsiders who have come to observe its operation attribute Brook Hollow's success to "young, capable private management, careful planning, and fair dealing, with the focus on long-term business relationships, rather than on quick, reckless profiteering. Also, freedom plays a part—freedom to select one's own architect, contractor, and real estate broker, for example."

- Midway between Dallas and Fort Worth, there is a brand-new 5,000-acre project, the Great Southwest Corp., which is, in the eyes of some authorities, the "most exciting development of this kind in the whole United States." Although detractors call it a promotion, a scheme, a dream, the facts do not entirely support them. Perhaps the critics are merely taking sides in the fierce rivalry between the two cities, which this planned park could some day help make into a single, vast metropolis—at least in fact, if not politically or culturally. Last month, 268 acres of Great Southwest's enormous tract had already been sold, leased, or put under option.

The management reports that the district expects to be operating in the black within the next eighteen months or sooner, slightly ahead of the investors' investment projection made two and a half years ago, when the corporation was formed. Already in operation is a 32-lane luxury bowling center, initial unit of a planned sports center. And this month, the first $1 million warehouse of a distribution center will go into operation.

What parks offer

Organized industrial districts vary considerably, of course, in their services, stage of development, convenience, quality, and charges. They don't pretend to be the answer to all or even most site selection problems. But they may well be an important possibility for many companies to consider in their new site search. "Site readiness," which most of the districts claim—or promise—does not mean that the districts' promotional enticements can be used as a substitute for the prospective user's own evaluation of his needs and painstaking long-range planning.

The advantages an organized industrial district offers to some companies could be drawbacks to others. But a summary of what the districts typically offer—or what may be built-

Do Industrial Parks Make Desirable Site Locations?

Yes	No	Neutral
25%	37%	38%

Among 107 companies responding to a DR&MI survey, one out of four companies says it favors locating plants and warehouses in industrial districts, largely for convenience and to provide better service. Among those objecting, cost was most often cited. The greatest number say they have no need or that the pros and cons are about even.

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in hazards for some companies—may serve as a guide to management in answering the question, "Should our company consider locating a new plant, warehouse, or laboratory in one of these areas?"

Some industries, regardless of preference, may be barred from entering the planned industrial district by the district's restrictive covenants. Although a few of the districts have been set up to receive heavy industry, it is pointed out that most companies which have located in parks are engaged in light manufacturing or assembly operations, distribution, and research.

No general welcome

Generally excluded, by the district's own restrictions, are industries characterized by excessive noise, vibration, odor, noxious gases, smoke, glare, heat, radiation, industrial wastes, fire hazards, and sometimes plain unsightliness—e.g., scrap yards.

While such typical restrictions may work a hardship on certain types of businesses, the Stanford study found a "positive correlation between the use of strong restrictions and the success of an industrial district. Certainly one of the reasons an industry locates within a district is to acquire the protections which restrictions offer."

But for those businesses welcome in the district, many other restrictions usually prevail as well—restrictions on setbacks, land-use ratios, parking lot ratios, off-street storage, loading and unloading, building height (most often, single-floor layouts), structural building materials, and often landscaping and other esthetic requirements. The actual restrictions are usually spelled out in the district's covenants in detail as meticulous and complex as that in an engineering handbook. A company contemplating site location in such a district would want to give careful consideration to the restrictions in relation to its own needs and wishes. Most districts won't require use of their own architects and construction firms, but they will reserve the right to reject an occupant's construction plans.

William C. Marland, former Governor of West Virginia, in discussing the relative advantages of industrial parks, has said that management might lose certain prerogatives in accepting the rules and regulations of an industrial park, and these might

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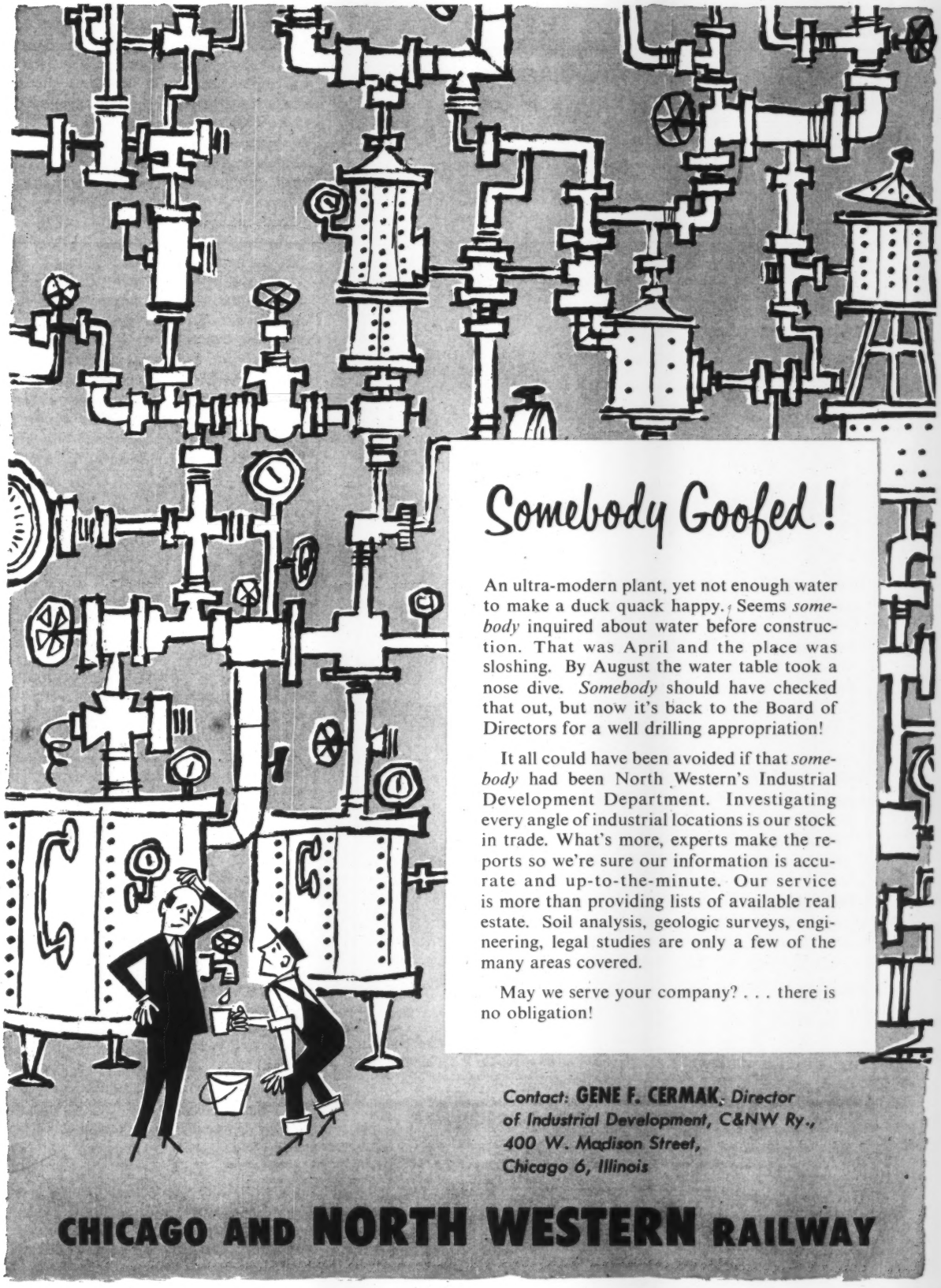

Somebody Goofed!

An ultra-modern plant, yet not enough water to make a duck quack happy. Seems *somebody* inquired about water before construction. That was April and the place was sloshing. By August the water table took a nose dive. *Somebody* should have checked that out, but now it's back to the Board of Directors for a well drilling appropriation!

It all could have been avoided if that *somebody* had been North Western's Industrial Development Department. Investigating every angle of industrial locations is our stock in trade. What's more, experts make the reports so we're sure our information is accurate and up-to-the-minute. Our service is more than providing lists of available real estate. Soil analysis, geologic surveys, engineering, legal studies are only a few of the many areas covered.

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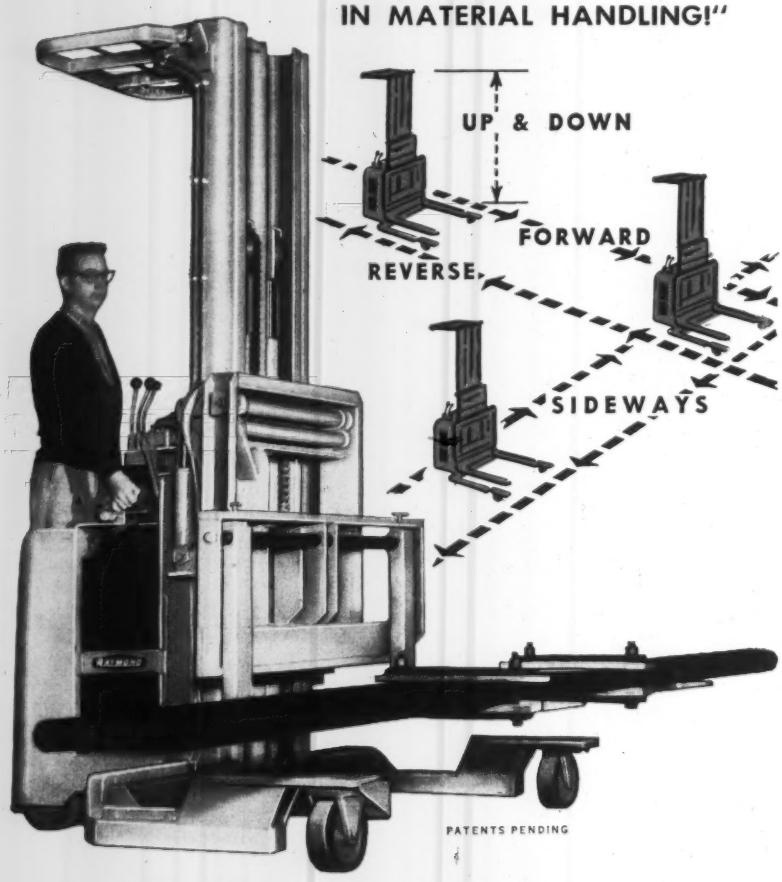

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interfere with later expansion if technological or other developments required operating changes in the business. The emphasis on esthetics, too, he added, might be too extreme in some cases and overlook a company's utilitarian requirements.

Other observers have noted that such requirements, while admittedly protecting and increasing the real estate value, could, when a park is fully occupied, arbitrarily limit a vigorous community's future industrial growth, not to mention the occupant's own. Many companies—and many park managements urge such action in the initial sale or lease—take options on adjoining property or actually buy on the basis of estimated growth needs. Ralph F. Breum, vice president of Cecil Underwood Windsor Properties, Inc., developers of Brook Hollow, says: "We tell 'em you only buy the land once. Plan for the future."

Prices will vary

Most of the planned industrial parks offer "site readiness" and a "package" of services with which, necessarily, may also go a higher initial cost. Costs vary widely, from district to district, and tend to rise, too, as occupancy in the district increases. At the Dartmouth conference, it was noted that a typical price for industrial park subdivisions was $10,000 an acre, and "that $18,000 an acre was not exceptional for sites with ideal locations in terms of immediate access to major highways and railroads." One partially-developed Florida district—still largely on the drawing boards—told DR&MI that it is currently selling land at $35,000 an acre.

Costs may also be influenced by who the district developer is, as well as by variations from area to area and within the district itself as it grows and value is added. Private developers, who accounted for 41 per cent of the districts reported by Stanford, are obviously in business to make a profit, but competitive prices of other land in the area may tend to keep prices in line.

Price concessions may be available more often among the 29 per cent of railroad-sponsored districts and the 17 per cent developed by community organizations, as well as others developed by combination groups. Usually, the railroad develops a district to promote heavier freight usage, and it may provide district space at its own in-

vestment cost. On the other hand, the railroad will naturally favor heavy freight users. As F. Clifton Toal, assistant vice president of industrial and agricultural development for the Southern Railway System, said at a DR&MI round table, "In our territory, at least, the pattern seems to be pretty well set that the railroads are going to own considerable industrial property, and, naturally, it has to be saved for people who have some rail freight."

Better than do-it-yourself?

A company thinking of locating in a planned district would probably want to compare carefully the price differential between the ready site in the district and the company's own development costs on lower-cost, raw land.

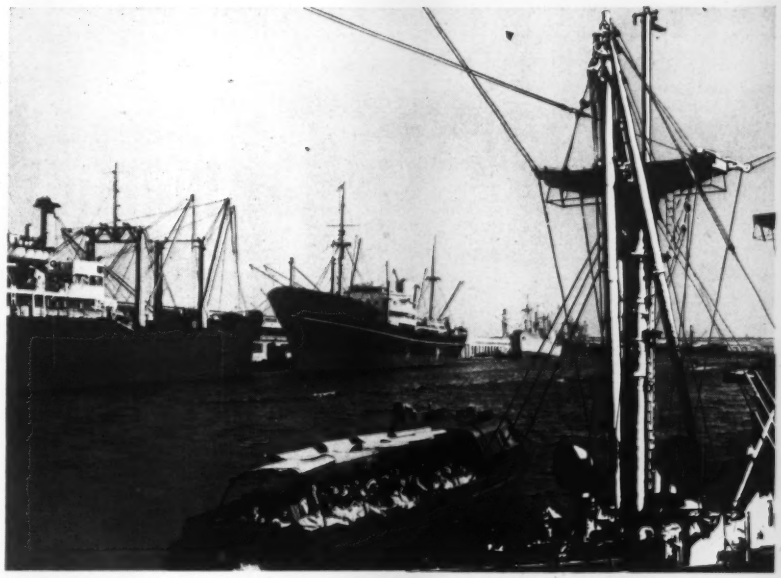
Some companies believe that the relatively high initial cost of a site in a planned district is well compensated for by other factors. A spokesman for Sylvania Electric Products, Inc., has said:

> Anyone who has tried to find a suitable location for his company's facilities knows it can be a long, drawn-out, tedious problem. We found this especially true in one large Eastern city where there was no available industrial district. It took us well over a year to find a satisfactory site and get it purchased.
>
> In contrast to this experience, which delayed our project and ran up costs, was the ease with which we have been able to locate in planned industrial districts, such as the Clearing Industrial District in Chicago, the Central Manufacturing District in Los Angeles, and the Hillsdale Industrial Park which serves the San Francisco area, or the Waltham (Mass.) Industrial District operated by Cabot, Cabot & Forbes.

A private developer that has established fourteen "suburban metropolitan districts" in New England and Pennsylvania—three of these industrial parks now fully developed—Cabot, Cabot & Forbes employs an integrated staff to offer this package plan: site analysis to locate the best possible site for the client; architectural design and engineering of the building to the client's specifications and requirements; construction of the new facilities; and financing "arranged to the client's fiscal policies."

Such plans, of course, relieve the company of considerable long-term staff expense and other headaches that go with site selection, although, obviously, the developer is interested in selling his own package.

The typical district "service pack-



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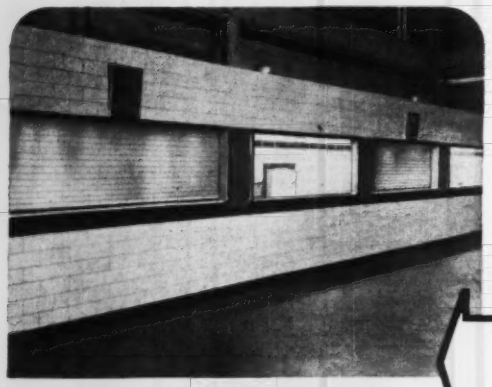

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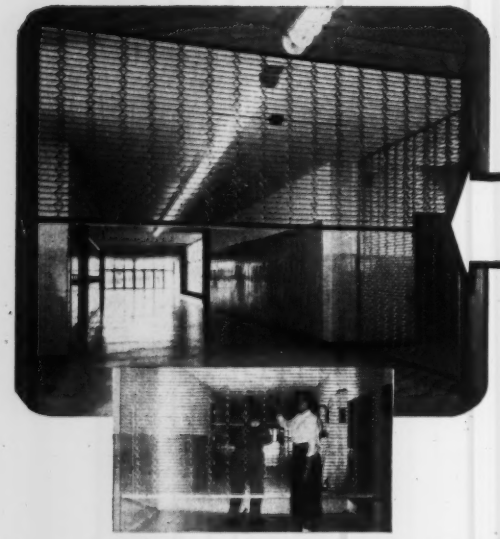
and

Kinnear Rolling Grilles



The Kinnear Rolling Grille, an attractive openwork of metal bars and links, is also widely used as a barricade for counters, doorways, corridors, or to confine activities to sections of any room or building area. It features the same, space-saving, coiling upward action of the Kinnear Rolling Doors and Counter Shutters.

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age," including rail drills and spurs, roads, power, water, sewage, and the like, is most often attractive to medium-size or smaller businesses with site location problems.

"Large national companies," the Federal Reserve Bank of Boston has pointed out, "usually have their own engineers, architects, and location experts to investigate sites, buildings, utilities, and all other problems connected with a new location. Smaller concerns do not have these specialists. They generally are not able to devote the time necessary to make thorough investigations and do all the detailed jobs connected with constructing a new building. They frequently are unaware of how to arrange financing."

In addition to such professional service, some planned industrial districts offer valuable fringe services—some provided by the district itself and others by occupants attracted to the district.

Playlands in work areas

Swimming pools, bowling alleys, and other recreational facilities are now operating or planned by some parks. Many parks build an "ever-available building" for smaller users or, presumably, for overflow needs of other occupants. Cafeterias are common, and motels are being built in some parks, such as Great Southwest and Westbury, N. Y.

One of the Westbury Industrial Park's occupants is an electronic data processing center, designed to meet the needs of the park's industrial neighbors, as well as businesses in the outlying community (see DR&MI, April 1958, page 91). Pennsylvania's three-year-old, 700-acre Fort Wash-

TYPICAL *of new park construction is this building front in the New England Industrial Center, one of fourteen built by Cabot, Cabot & Forbes.*

What goes on behind this sign?

Warning signs around one section of Standard Oil's test laboratory are there because radioactive engine parts are installed in a test engine. Wear of these parts is noted by losing radioactive metal that wears off. This test has shown that the right gasoline can reduce engine wear by as much as [illegible]. The test finds out in two hours what formerly took 2[illegible]

This is just one test in Standard's never-ending search for ways to prevent vapor lock, improve cold engine starting, reduce cold engine wear, improve fuel volatility, get more miles per gallon, reduce knock and improve hot engine starting. For example, [illegible] RED CROWN Gasoline has an octane [illegible] gasoline did a couple of years ago.

Additives that have come from Standard's research, when blended into Standard gasolines, provide real benefits. They protect against rust, prevent deposit buildup, prevent gasoline from evaporating and carburetor icing, prevent engine oxidation, minimize knock, [illegible]. Additive packages are proved by road tests on [illegible] equipment under all driving conditions.

[illegible] your gasoline, [illegible] Standard [illegible] equipment [illegible] happening in the Standard [illegible] research [illegible] Standard [illegible] needs [illegible] necessary [illegible] gasoline [illegible]

You expect more from STANDARD and you get it!

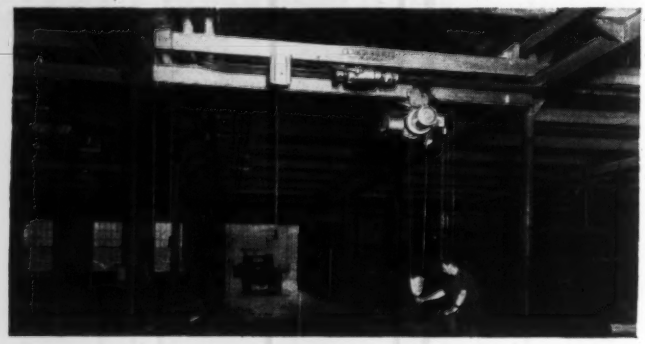
SHEPARD NILES

SINGLE BEAM CRANES

WHICH CRANE

. . . Over-running or Under-running?

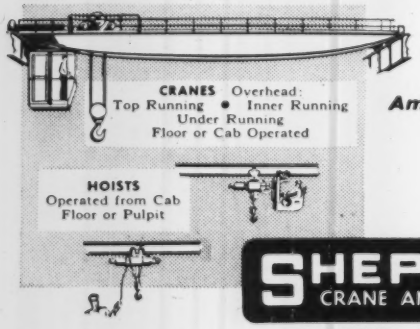
OVER-RUNNING where double beam cranes are not practical or for auxiliary service.



UNDER-RUNNING . . . for limited clearances . . . operating on runways hung from roof trusses!

Cut costly ground level handling. Move loads smoothly and safely overhead with Shepard Niles single beam cranes. Operate from floor or remote location. Push type or motor driven trolley type hoists, including close clearance units.

Send for Single Beam Crane bulletins today . . . or ask that a Shepard Niles representative call — there's NO OBLIGATION.



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ington Industrial Park is now constructing an industrial medical clinic and also has a management center, offering instruction in electronics, among other things, to employees of district companies. Although they are beyond the stricter definition of a planned industrial district, some developers are planning to adjoin the park's complex with shopping centers and office centers. Service businesses, like banks, also may naturally follow industry into the park.

Whatever specific advantages a particular planned district offers to a particular industry have to be weighed against the disadvantages. The most commonly cited potential advantages are: economies of scale in land improvement, installation of utilities, and construction of access routes; availability of a package plan; protection against deterioration of the area; site readiness; absence of community resistance or hostility; joint projects among the tenants; and possible tax advantages. Among the possible disadvantages are: high initial cost; limits on expansion; restrictions on types of operation; and loss of some management prerogatives.

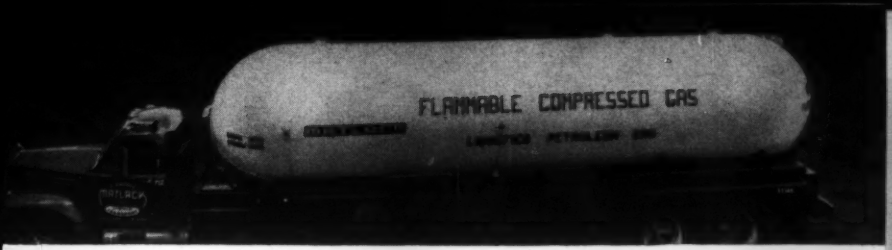
Effect on employee relations

There has also been considerable talk to the effect that park occupants might be more vulnerable to union activities, although this view is still speculative and untested by experience. Also unproved is the claim that parks might permit labor piracy, although competition for the same labor market, if it were unusually tight, might cause trouble.

Other observers believe that companies locating in a park may lose public recognition or identity. But while this could be true of a larger company, a very small one might gain prestige from distinguished neighbors.

At present, at least, the industrial districts obviously cannot compete with some cities in cultural advantages, deep water harbors, and financial centers—unless, of course, they are located at the edge of such a major metropolitan area.

But as a growing industrial trend serving the current and growth needs of some kinds of businesses, the planned or organized industrial district cannot be arbitrarily dismissed. It may become increasingly vital to include it in any expansion planning to meet the potential market opportunities of the '60's. —KENNETH HENRY



We boosted our business with USS "T-1" Steel

THESE ARE THE WORDS of Mr. Robert Matlack, Executive Vice President of E. Brooke Matlack, Inc., the nation's largest over-the-road liquid transportation firm. He goes on to say, "We really stunned our competition when, a few years ago, we decided to retire our old twin-barrel propane tankers made of carbon steel, and turned to 'T-1' Steel outfits. At the same time, we were able to drop our freight rates by as much as 15%. Business boomed."

Matlack knew that USS "T-1" Constructional Alloy Steel had a much higher yield strength than carbon steel. This would give an excellent weight advantage which could readily be translated into profit dollars. So they ordered five blimp tankers, made of "T-1" Steel, from the Butler Mfg. Co., Kansas City, Mo.

The new "T-1" Steel tankers weighed only 19,500 pounds empty, against 24,000 pounds for the old tankers—a clear saving of 4,500 pounds. They could carry from 500 to 700 extra gallons of propane on each trip. Results were so good that they increased the fleet to 18 tankers.

Why not get the facts on how USS "T-1" Steel can improve your competitive position. "T-1" Steel's great strength (100,000 psi minimum yield strength) helps trim costly dead weight from structures, pressure vessels, equipment of all kinds. Its outstanding resistance to impact abrasion has increased service life in abusive applications up to 10 times longer. Its extraordinary toughness, even down to 50° below zero, has caused heavy-duty equipment to last longer without breakage. And "T-1" is weldable, too.

Write for our booklet, *USS "T-1" Steel.* Remember, too, that U. S. Steel makes three brands of High Strength Steels—USS COR-TEN, MAN-TEN, and TRI-TEN—each having specific advantages for equipment that must be built strong but light. United States Steel, Room 2801, 525 William Penn Place, Pittsburgh 30, Pa.

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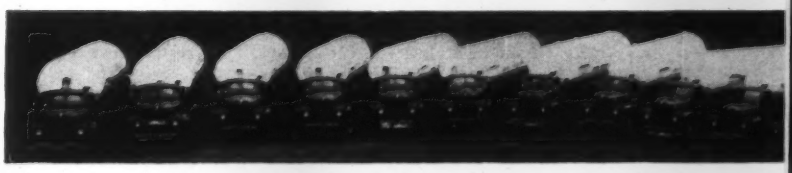

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NEW LIGHT ON SITE SEEKING

continued from page 91

trouble by making a hasty decision to move when confronted with a sudden emergency, such as a strike or the loss of several major customers. (For a detailed analysis of plant location mistakes see DR&MI, March 1957.) A new plant location should never be considered solely as a remedy for an immediate problem. Instead, it must be an integral part of the company's long-range planning.

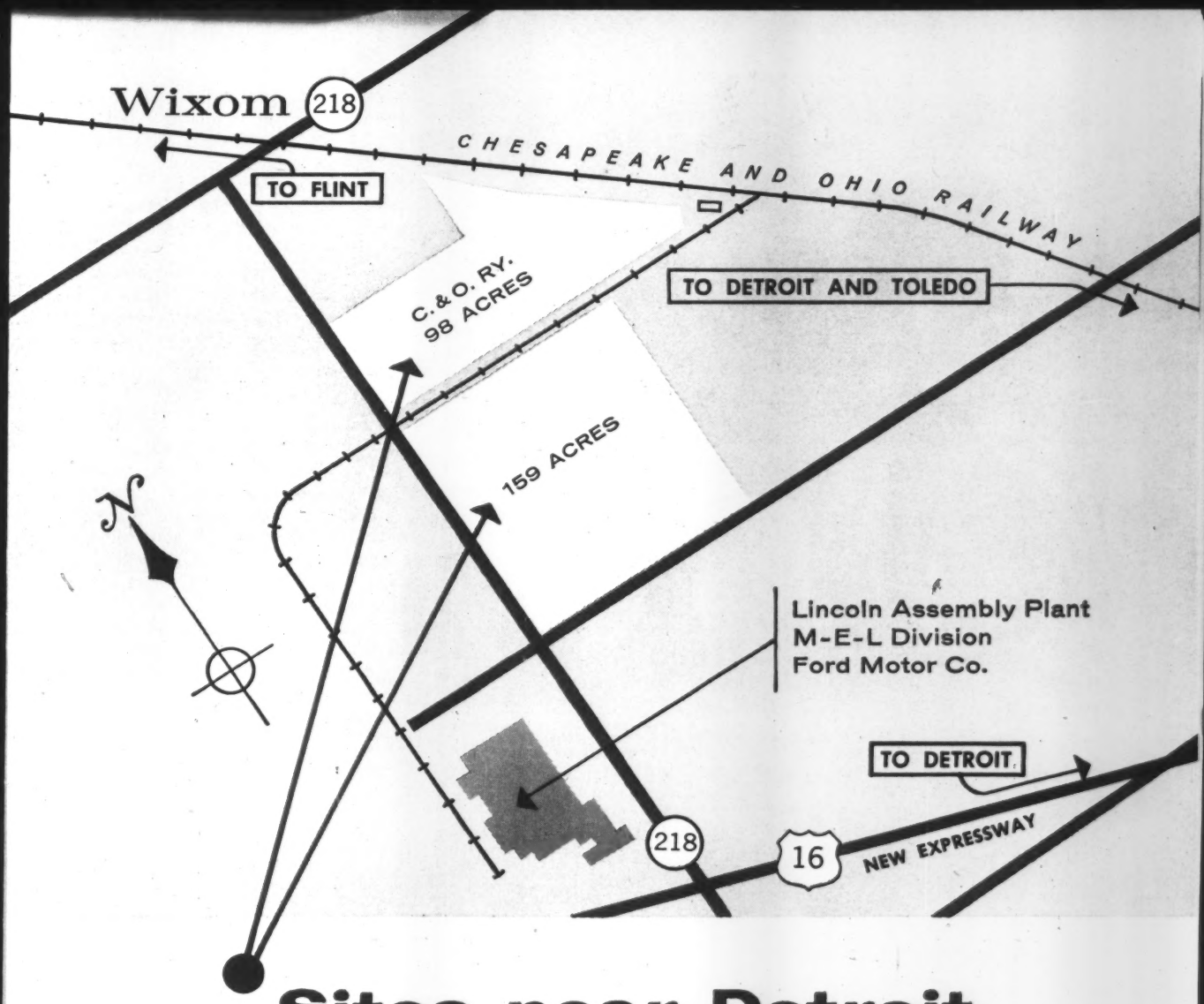
In other cases, companies bow to the pressure of important customers such as railroads and public utilities (who are, of course, in the area development business). The problem of reciprocity is one that particularly plagues manufacturers of equipment for the utility and transportation industries.

Improvement noted

But despite the many errors that companies still make in plant location, management's approach to site selection has become much more precise in the past decade. Says Fred Meyer, vice president of H. B. Maynard Company: "In the last ten years, there has developed a tendency to stop relying on emotions in deciding whether a company should stay where it is or move elsewhere. Of course, this tendency is more prevalent in companies of reasonably large size, which rely more heavily on the economics of the situation, than it is in the medium-size and smaller companies which might be family-controlled and have emotional ties to their present location."

According to Maurice Fulton, president of the Fantus Factory Locating Service, Inc.: "In their planning for specific locations, companies are turning more and more to a scientific approach—trying to anticipate their requirements and project them into a specific location, rather than waiting until they suddenly have a need for more production and then running out and looking for any existing buildings that can be had immediately. There is a new recognition that sound expansion requires advance planning."

Although the availability of a reliable labor supply remains the No. 1 consideration with most of the surveyed companies, other factors in plant location are becoming increasingly important. More than half the



Sites near Detroit

As Detroit's industrial complex spreads ever outward, it becomes more difficult to find plant sites with all the advantages of those shown above. Only twenty-six miles from downtown Detroit, and thirty-six miles from Flint, the Wixom area can draw skilled labor from both of these industrial concentrations. And it also enjoys easy access to other manufacturing points such as Lansing, Grand Rapids and Toledo. The environment is attractive and includes a number of small lakes and several state parks.

TRANSPORTATION: Chesapeake and Ohio Railway; new expressway into Detroit.

WATER: Finest ground resources in Detroit area.

TOPOGRAPHY: Level.

UTILITIES: Unlimited electricity and gas available.

Complete Industrial Surveys of these and other Michigan sites are available to interested companies. Inquiries are handled in complete confidence and without obligation. Address: Wayne C. Fletcher, Director of Industrial Development, Chesapeake and Ohio Railway, Huntington, West Virginia • Telephone: JAckson 3-8573.

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companies report that transportation has increased most in importance in the last few years.

Several are now more concerned with finding locations which provide good schools and a cultural environment that attracts high-level technical people.

There also is a much keener awareness today of the importance of the "business climate"—the community attitude toward business.

Let's open new vistas

Some of the surveyed companies are already making plans which take into account the effect that jet air transportation will have on their plant locations. A Midwest metal-working company plans to give more serious consideration to West Coast plants now that executive travel time can be cut by jet travel. Scott Paper Company, Chester, Pa., reports that the jets will have no immediate impact on location policy for plants, but that the company is putting up new executive offices and research laboratories adjacent to the Philadelphia airport to take advantage of the new advance in air travel.

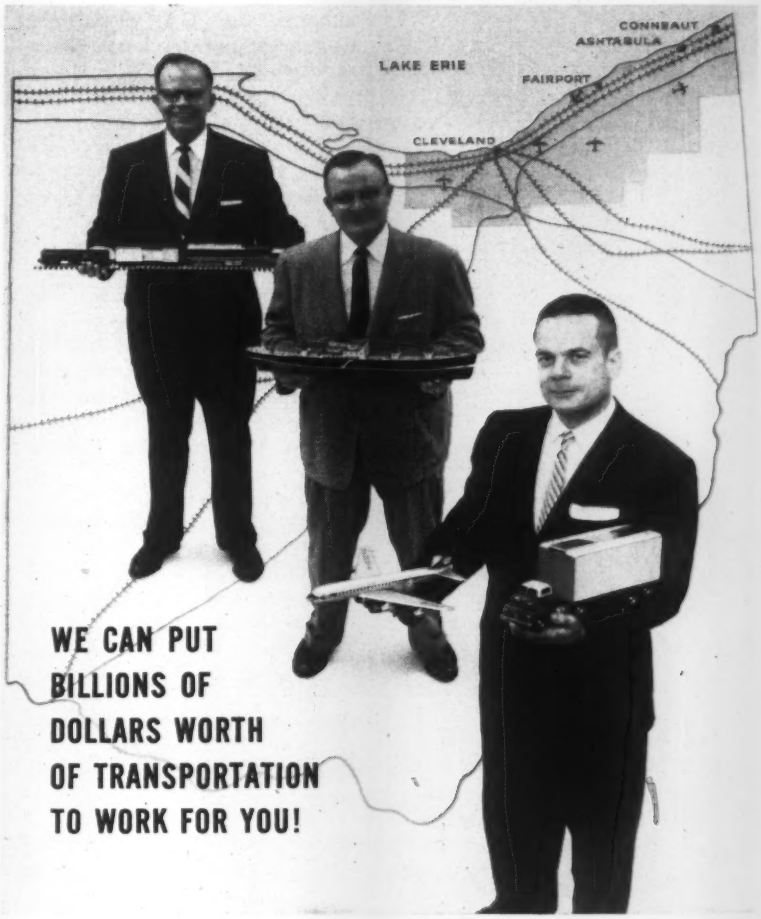
Several of the surveyed companies indicate that the coming of the jet age probably will mean the expansion of their foreign operations. Executives in several other surveyed companies think that jet travel will permit their companies to expand operations without increasing the executive staff. A few others indicate that their companies will be able to push plants into remote markets, while retaining good management control.

How does a company assess the conflicting claims of the many areas trying to attract industry?

Already, there are several thousands of development groups across the nation—each one selling the benefits of its own locality. In fact, to the small company the oversupply of information presents a problem, since the staff needed to weigh it systematically is not available.

Even the large company has difficulty assessing the claims of developers. The facilities planning chief in a giant company says: "I see a lot of state representatives who come in trying to induce us to come into their areas. In most cases, they place the emphasis on the wrong things—the short-term benefits."

Most of the surveyed companies report that they know of no clearing-



You name it—trains, planes, trucks, ships—and Northeast Ohio—The Best Location in the Nation has it. Five major railroad systems reach all parts of the country. Twelve certified airlines provide excellent air transportation facilities. 128 trucking companies, plus the Ohio Turnpike, make over-the-road shipping convenient and fast. 30 domestic and 17 foreign ship lines use the excellent ports of Cleveland, Ashtabula, Fairport and Conneaut.

We'd like to tell you more about transportation in Northeast Ohio—and about the dozens of other advantages The Best Location in the Nation offers as a prospective site for your plant or business headquarters.

We carefully study all phases of business in Northeast Ohio and constantly revise our information to keep abreast of the vast expansion now taking place and of the future possibilities it offers.

If you want the most authoritative, the most complete and the newest information about your future in The Best Location in the Nation write today to Richard L. DeChant, Mgr., Area Development Dept., Room 550, The Cleveland Electric Illuminating Company, The Illuminating Building, Cleveland, Ohio. Free booklets on "Water," "Chemicals," "Transportation," "Research," are available. Also comprehensive report: "Production Center for Defense."

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY
IN THE BEST LOCATION IN THE NATION

Eyeing a new plant site?

The Texas Power & Light Company invites expanding industry, large or small, to make use of the services of its staff of specialists—skilled and experienced in serving officers and executives of industrial corporations. Without obligation, your particular location problems will be carefully and thoroughly analyzed by those having broad knowledge of industry and facts pertaining to manpower, materials, resources, finance and other important factors in Texas.

Write, wire or call J. D. Eppright, Director, Industrial Development Division, Texas Power & Light Company, Dallas, Texas. Inquiries held in strict confidence.

Booklet detailing plant location services sent on request.

TEXAS POWER & LIGHT COMPANY

house of information on plant sites, although the U.S. Department of Commerce has developed a one-stop service—the Industrial Location Division in Washington—for companies interested in plant location.

Others delegate the job of investigating various locations to a consulting firm. When the companies do their own fact-finding, they report that their most useful sources usually are the state and local chambers of commerce, followed by power companies and railroads.

Sixty-five of the surveyed companies prefer to locate their new plants in suburban areas. Generally, the preference is based on the availability of land for expansion, closeness to large metropolitan markets, good labor supply, flexible transportation, good utilities, and the availability of supporting industries.

Another advantage is that the better-trained, more technical labor force needed for many upgraded industrial jobs is more readily available in suburban areas.

Western Electric points out also that placing a new plant near a peripheral highway in the suburbs makes it accessible to the labor force of the whole metropolitan area.

The country life

However, 22 of the surveyed companies prefer rural areas for their new plants. The main attractions of rural communities are lower labor costs, better employee relations (fewer unions), and lower taxes and other operating costs. Says the director of manufacturing for a large rubber manufacturer: "Rural areas enable us to establish our own labor environment free from the interference of adjacent employers."

Automation enables companies to take advantage of the low costs offered by many smaller communities. Says Don G. Mitchell, board chairman of Sylvania Electric Products, Inc.: "Without mechanization we would never have been able to take our work to many small communities because their labor forces would have been inadequate. We would have had to build our plants in large industrial centers."

It is in these smaller communities that industrial growth has made the most rapid strides in recent years, increasing at about three times the rate for the nation as a whole.

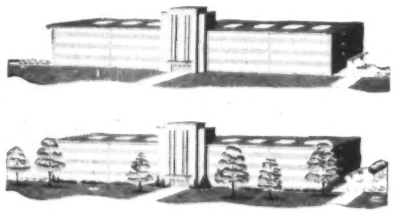
The increased mechanization of ag-

COMMUNITY RELATIONS through trees

by The Davey Business Advisor

The Community knows you better on the *outside* of your building than inside. This is why the trend in the last decade has been toward professional landscaping.

Compare the two pictures below. Now imagine your plant on this site without—then with—trees.



Trees soften the lines of a building, provide shade for employees, beauty for the community. Trees are good public relations.

Trees are also good employee relations; they boost morale and arouse appreciation for management.

For an estimate on landscaping a new plant, or for help in developing a reasonable annual budget for protective tree care to make the most of your tree investment, write

DAVEY TREE EXPERT CO.

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P.S. Your trees at home are the most valuable possessions in your outdoor living space. They deserve Davey care, too. Look up DAVEY TREE SERVICE in your phone book.

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CAMBRIDGE METAL-MESH BELTS help you beat *today's* profit squeeze—give you the low-cost production and high product quality needed for the *competitive '60's!*

Combined movement and processing means metal parts, foods, ceramics, or chemicals are processed faster, more uniformly—without costly manual handling. High product quality is maintained because heat, cold or liquids flow through the belt and around the product for thorough treatment. Cambridge Belts save on operating costs, too. Superior belt design and manufacturing techniques mean longer life, fewer repairs, lower operating cost. Belts can be made heatproof, coldproof or acidproof—in any mesh, weave, metal or alloy—with any side or surface attachments.

Have your Engineering Department call the Cambridge Field Engineer in your area. He'll be glad to discuss any aspect of Cambridge Belts— from manufacture to installation and service. He's listed in the yellow pages under "Belting, Mechanical". Or, write for FREE 130-PAGE REFERENCE MANUAL.

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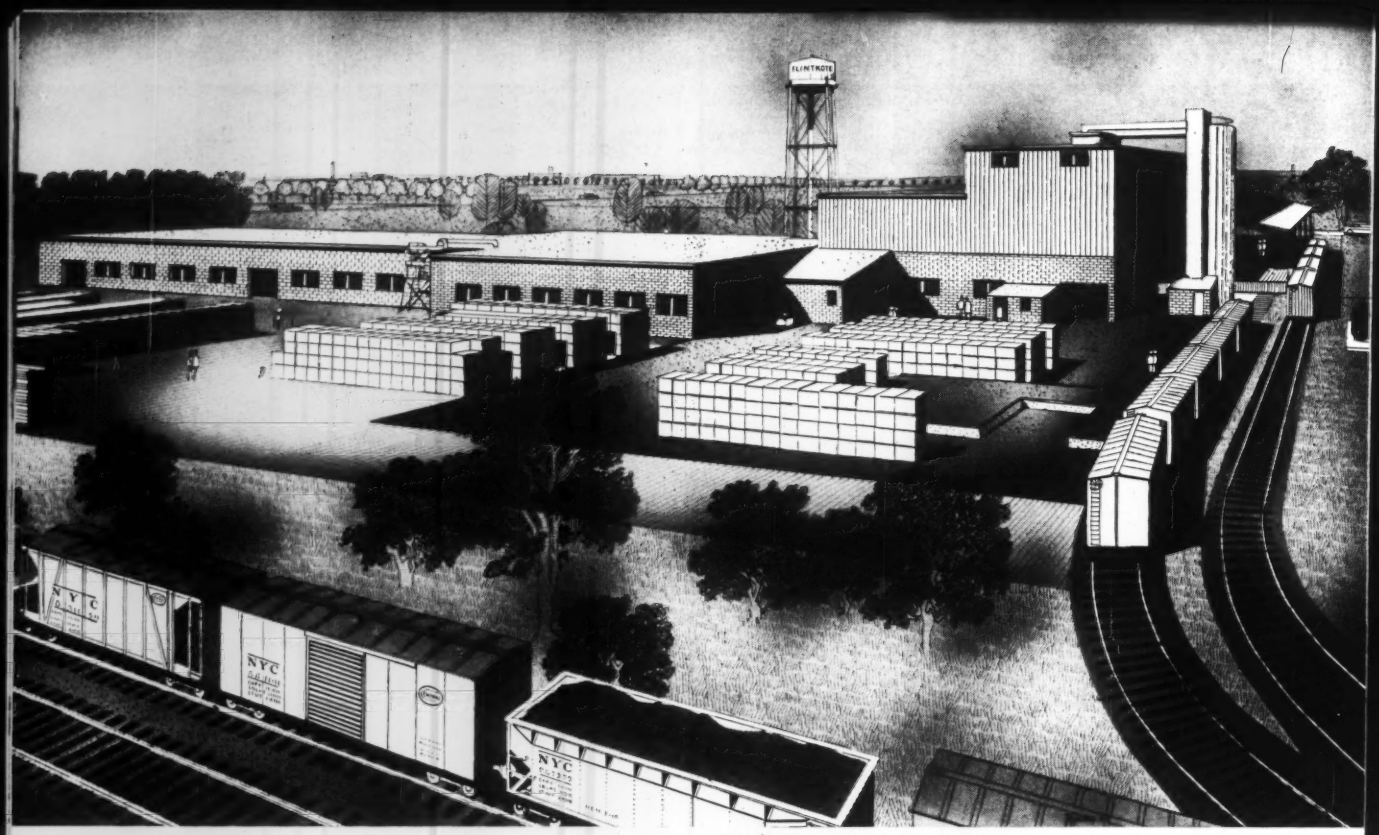
Manufacturers of Wire Cloth, Metal-Mesh Conveyor Belts, Wire Cloth Fabrications



Flintkote's new Insulrock plant, just about midway between Chicago and South Bend, strategically located with the help of the New York Central.

"Just what we needed" says Flintkote about the Central's plant-site suggestion!

How to locate a new plant? Sometimes hundreds of possibilities suggest themselves. That's when New York Central's plant-site consultants can help separate the wheat from the chaff . . . come up with solid, worth-while appraisals!

Take the case of The Flintkote Company, manufacturers of the broadest line of building products in America. A site was needed for their new Insulrock plant. After calling in the Central and looking into its recommendations, Flintkote management agreed that a 35-acre site in North Judson, Ind., met their requirements to the letter!

Less than 60 miles from Chicago, less than 40 from South Bend, North Judson is right in the center of an area of great building activity, and is close to many of Flintkote's best customers. In addition, North Judson is next to New York Central's main line.

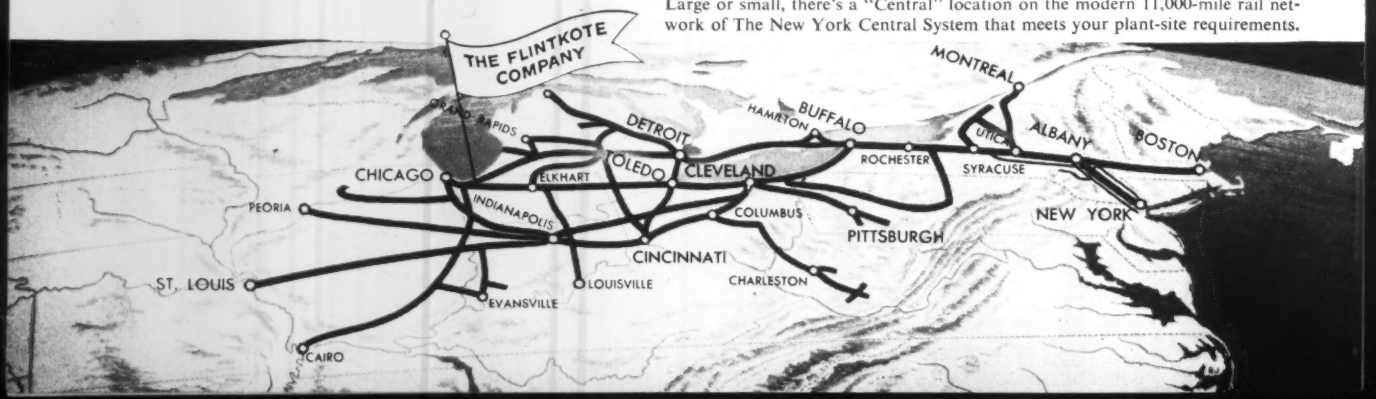
What the Central did for Flintkote, it can do for you, whatever your special needs! If you wish, the Central will not only draw up plant-site reports, but will also assemble the necessary acreage . . . work with local officials to solve special problems—all this on a confidential basis and at no charge to you.

Write to: Otto W. Pongrace, Director of Industrial Development, Dept. E, New York Central Railroad, 466 Lexington Ave., New York 17, N.Y.

Plant-Site Opportunities
New York Central has 15 illustrated brochures filled with details on the following industrial areas. Feel free to write for the ones you want.

1. **Albany-Troy-Schenectady**
2. **Ashtabula**
3. **Buffalo-Niagara**
4. **Cal-Sag (Chicago Area)**
5. **Chicago**
6. **Cleveland**
7. **Detroit**
8. **Elkhart**
9. **Gardenville, N.Y.**
10. **Rochester**
11. **St. Lawrence Seaway**
12. **Syracuse**
13. **Utica**
14. **Youngstown**
15. **Industrial Parks in Ill., Ohio, N.Y., Mass., and Mich.**

Large or small, there's a "Central" location on the modern 11,000-mile rail network of The New York Central System that meets your plant-site requirements.



riculture also is responsible for making sizable numbers of former farm workers available for industrial jobs, and companies are discovering that because they have roots in the community, these young people make loyal, conscientious employees. President R. A. Niekamp of the Standard Dayton Corp. of Dayton, Ohio, says: "In rural areas, a better grade of employee is more readily available. They can live on farms or have small plots of land—both of which are conducive to contentment."

However, there are drawbacks to sprawling plants located far out in the country. The National Board of Fire Underwriters points to the frequent lack of good fire-fighting facilities which compounds the danger to employees in the new-style windowless plants.

They stick with the cities

For various reasons, nine of the surveyed companies still prefer to locate new plants within city limits. For instance, a manufacturer of paper products who depends on a large supply of women workers must be near public transportation facilities. Other companies with products that are consumed in local metropolitan markets and will not support heavy transportation charges have no plans to leave the cities. The area from which companies can draw employees has been greatly extended in recent years. Rarely now do companies seek a location which will permit employees to walk to work.

Some experts on plant location figure that a plant can draw workers from throughout an area within an hour-and-a-half driving radius of the plant. The new DR&MI survey of 107 companies shows that the average commuting distance is about ten miles. Some companies report that their production employees drive an average of 25 miles each way.

Some very large multi-plant companies will not move into a community in which they will employ more than 6 per cent of the area population force. They have come to believe it is poor public relations to dominate a community and create the atmosphere of an old-time, paternalistic company town. When a company on which a community depends is forced by economic necessity to close down a plant, the repercussions can be very damaging.

But of the surveyed companies, only thirteen out of 107 have such a numerical restriction in their plant location programs. Most of these thirteen companies agree with General Electric in limiting their hiring to 5 per cent in new locations. A few won't pass 10 per cent, and one large metal-working company places the upper limit at 15 per cent.

Only about a half dozen of the 107 surveyed companies express any firm resolution to omit any particular state or geographic area from their site selection list. In virtually every company surveyed, the site is chosen in light of the individual facts involved.

The states and metropolitan areas that the six companies hold in disfavor are noted for large labor concentrations and union strength.

Regions for growth

Industry's movement to the South, Southwest, and Pacific states in recent years is likely to continue, survey respondents predict.

The reasons given for this geographical shift include such things as good productive labor supply, lower building costs, and better business climate. But the most important reason is simply the development of new, untended markets in these areas.

In addition to the profit opportunities in moving closer to fast-growing markets, plants generally move for two other reasons: the need for expansion room and a desire to flee from an unhealthy labor situation.

One-third of the 107 surveyed companies are applying operations research techniques to their plant location problems.

Says John Kirkpatrick, Midwest manager for Arthur D. Little, Inc.: "A new plant today, in a large company particularly, has to be part of the whole spectrum of that company. It can't be just a location problem. It has to be part of the whole problem of the available capital which is going to be brought to bear on the company's expansion. And it does lend itself to quantification to formulas that can be programmed on computers. Inventory control can often determine whether a company needs a new plant or a new warehouse or something else. By 1965, there will be ground rules on plant location and plant expansion which are far more numerical than we can now imagine. There may be almost straightforward procedures, such as you now find in statistical quality control." END

To help you find the right plant site in INDIANA and ILLINOIS

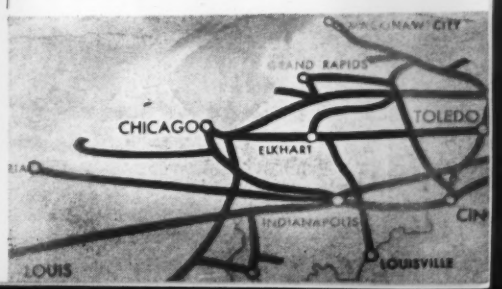
AVAILABLE without obligation, 3 fact-filled guides on plant site opportunities in the Cal-Sag, Chicago, and Elkhart areas.

These New York Central booklets give full details . . . describe dozens of representative plant site locations . . . include contour maps and aerial photographs. They also give data on labor availability, transportation, raw materials, local government, tax rates, and other facts you'll want to know.

Interested in other markets? New York Central also has new brochures on plant site availabilities for other key market areas. See opposite page.

For your free brochures and information on how the Central can help you, write: Otto W. Pongrace, Director of Industrial Developments, Dept. E, New York Central Railroad, 466 Lexington Avenue, New York 17, New York.

New York Central Railroad



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New 100% Chemi-Cool HOCUT

Again, Houghton leads the way with a brand new concept in cutting fluids that combines all the important features of many coolants into one economical package.

HOCUT 237—the "NEW LEAF" in Coolants—has, in the past few months, already proved itself one of the most versatile, effective and economical coolants ever to appear on the metalworking scene.

New HOCUT 237 is typical of Houghton's pioneering leadership in developing new and better products to improve metalworking processes.

Others: Mar-tempering salts for missiles; fire-resistant hydraulic fluids for danger spots; cleaning compounds for room-temperature surface cleaning of metals; quenching oils that cover the range from slow to fastest. For these and other processing aids, write E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.

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Ready to give you on-the-job service

ROCKWELL'S FORMULA
continued from page 92

supply, fire protection, taxes, climate, wage rates, and specific sites.

In considering community inducements to build plants, Rockwell is wary of special deals, such as tax concessions. Comments Rockwell, "We want to go into a community where we know new industries are carefully screened before they are invited in, and we don't want inordinate tax breaks, which, in effect, may come out of the pockets of other companies already in the town."

After consultants have narrowed plant recommendations to a specific location, Rockwell follows what might be considered an unscientific approach in making a final decision on the location. It studies local newspaper files, quietly appraises the current political, economic, and social climate of the town. Rockwell executives visit as many community residents as possible. From other industries in the community, they learn about community attitudes, employees' sense of responsibility, and similar factors as viewed by fellow industrialists.

Rockwell finds that in the final analysis, a walk around town to look at the parks to see if the grass is cut, at the schools to see what shape they're in, at the churches and the homes to see if they're well-kept can tell more about the town than all the inducements and welcomes extended by community leaders.

Small plants are economical for Rockwell because it has many products and product variations that require short production runs. They add up to nineteen basic product lines sold to 28 basic markets and an annual sales volume well over $100 million.

By using small plants, the company can keep each one operating steadily on a limited number of products or product lines.

Market access cuts costs

The set-up also brings manufacturing operation close to the market, which cuts sales and distribution costs. It simplifies management's job and provides a ready-made system for management development. Manpower needs are easier to fill in a small plant than a large one, and each manager develops well-rounded experience that helps him grow into bigger assignments.

There is, of course, need for a strong headquarters management group for such operations as industrial relations, finance, industrial engineering, and similar jobs. But Rockwell has found this group does not have to be expanded proportionately as new plants are added.

Rockwell often uses a method of financing plants that once was quite common: assistance from community development groups. This was used much more frequently during the early period of U.S. industrialization.

In practice, the development corporation formed by local citizens raises most of the capital needed to build a new Rockwell plant through sale of bonds. Generally, several hundred citizens of the town participate by subscribing to the bonds, with maximum individual investments set at about $10,000. The remaining capital needed to build the plant comes from mortgage arrangements with lending institutions such as insurance companies, trust funds, or institutional investors.

Complete control over the type of plant to be built is in Rockwell's hands, and the local development corporation arranges for construction of the facility to Rockwell's specifications.

While operating the plant on a long-term lease, Rockwell pays rent to a local bank which handles mortgage payments and repays bondholders for their investment in the plant. All expenditures for maintenance of the plant are Rockwell's responsibility.

A working partnership

Since the employees of the new plant are mostly local people, the new enterprise adds a stable payroll to the town, increasing local business and creating a sense of partnership with the people who made the new plant possible.

Rockwell finds the technique more valuable as a means of gaining community participation than of financing. The company believes it's healthy to have people of a community join together in helping a company operate there. "This is a two-way vested interest," says Rockwell. "If people invest money in your plant, you are pretty sure they welcome you and will favor your continued operations—assuming you live up to your community responsibilities."

The company believes it important to balance rented and owned facilities

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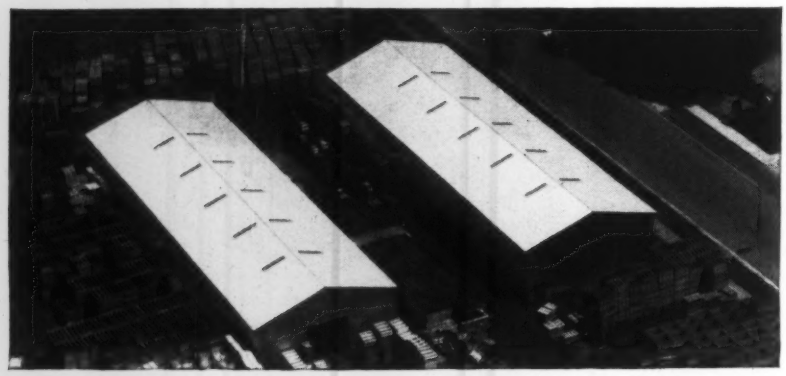

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Both pictured general warehouses of the Motor Wheel Corporation have aluminum siding and roofing, skylights and asphalt floors.

Motor Wheel Corporation estimates these pole buildings were erected for half the cost of conventionally-built structures originally considered.

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so that annual rental costs for leased plants do not become an unsound drain on cash.

The biggest job in establishing a new plant in a community is preparing people for the impact of the new industry, Rockwell has found. A plant employing 300 people directly affects 2,710 people, according to studies by the U.S. Chamber of Commerce. These 300 manufacturing jobs create 222 other jobs in grocery stores, service stations, new construction, and numerous other businesses in the town. About twenty of the new plant jobs call for experienced supervisors who generally come from other areas, creating promotions for the jobs they left.

Assuming each person with a new job has a family of five, 2,710 people would be directly affected, plus other hundreds in the community concerned with the new plant, such as local government and civic leaders, business men and suppliers, and that large, indefinable group who will be neighbors in the community.

Getting acquainted

As soon as the decision is made to move into a community and while everyone is still interested, Rockwell puts into motion a program of building good will. Within days of the announcement that a new plant is coming, Rockwell sponsors meetings with local leaders to explain who it is and what it does. These leaders are put on company mailing lists to receive financial reports and other literature describing its operations.

In estimating the economic value of the company to the community, Rockwell management men are realistic and do not try to over-sell. They respond directly and reassuringly to any fears that Rockwell's new plant will take all the best employees from existing companies in the town.

The whole town is invited to the groundbreaking ceremony, and an open house for the entire population is scheduled when the plant is finished. The Rockwell message is explained through news columns of local papers, paid advertisements, speeches before civic clubs, and in every other way possible—including literature distributed to doctors' reception rooms, and barber and beauty shops. "By the time we start operations, nearly everyone knows who we are and just what we're doing in town," Rockwell explains. In a small town, this can assure a company of vital cooperation. END

PLANNING FOR PLANTS
continued from page 60

of people involved in planning plants for the average company today also reflects management's desire to draw on as much experience as possible and encourage full participation.

In addition, management in large companies has developed systematized procedures for planning plants, complete with projected budgets and forms.

For instance, at American Radiator & Standard Sanitary Corp., step-by-step procedures have been developed to make sure that new plant projects are properly planned, and a standardized procedure is now followed by everyone involved. The new manufacturing services division provides the company with a means for accumulating experience in this area.

Budget stretchers wanted

Top management is setting up new, precise procedures for handling one of its major responsibilities—capital expenditures—and is taking on specialists skilled in the intricacies of stretching the capital budget to its furthermost limits.

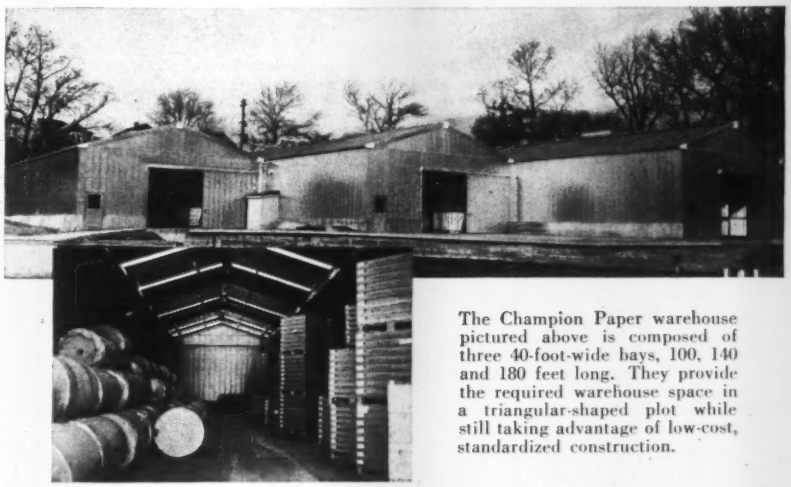
The rapid appearance of new products in the past few years has created new pressure on management that calls for more precise long-range planning. It has not been generally realized that a given investment in new product research, if successful, today means that more money must be spent for development, pilot plant, and productive plant.

Says John Kirkpatrick of Arthur D. Little, Inc.: "We find, as a result of the emphasis on new product development, that a number of companies with sales over $100 million are designating an executive whom you might call the 'vice president in charge of change.' He has plant location, market research, product research, and other functions reporting to him, and he really is pretty much of a rising star, reporting to a president or a board."

Companies are taking an increasingly systematic approach to the planning of new facilities. Large companies that are growing steadily—IBM, Blaw-Knox Company, and Raytheon Manufacturing, to name a few—have set up formal and continuing departments to plan ahead for new plants.

Long-range facilities planning is rather rare among companies with less

Champion Paper gets weathertight, fire-safe product protection in this new Armco Building



The Champion Paper warehouse pictured above is composed of three 40-foot-wide bays, 100, 140 and 180 feet long. They provide the required warehouse space in a triangular-shaped plot while still taking advantage of low-cost, standardized construction.

Paper is a tough product to warehouse; it requires a lot of space, and it must be kept dry.

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than $10 million sales. In companies under $5 million, it usually goes on only in the president's mind.

In most small companies, need for construction of a new plant or a plant relocation seldom occurs more than once during the tenure of a particular management group. Consequently, there frequently is a lack of experience and information on which to base a decision on whether, how, and when to build a plant.

At the Collins Radio Company of Cedar Rapids, Iowa, a long-range building plan has been developed, involving the approximate location, size, and cost of required plants. This plan is reviewed annually so that it can provide a continuing guide to plant expansion as required.

The new planning team

The facilities planning department is one of the newest to find acceptance in industry. These new staff groups provide specialized functions that in the past (and generally still in smaller companies) were handled by the manufacturing vice president, along with his regular responsibility for getting out the product.

These new groups work closely with the market research and manufacturing departments in correlating the future demand for the company's products with the plant capacity to produce the projected product. These new departments are an important adjunct to the planning departments which large companies are increasingly setting up to plan their total growth in the years ahead.

The facilities planning departments pinpoint the exact plant requirements needed by manufacturing, and, after these proposals receive top management's approval, handle all relations with architects, contractors, and designers.

The surveyed companies report that their actual planning of a new plant starts much earlier than in the past. As a result of this and of today's better construction methods, construction time is considerably shortened.

But companies are discovering that construction of a new plant is only a part—admittedly the most important part—of the entire complex of long-range planning. About 80 per cent of the companies surveyed mesh their facilities planning programs formally with their long-range planning.

In most small and medium-size

companies, planning for expansion is an on-again, off-again affair. But the new DR&MI survey indicates that in most large companies, facilities planning is being coordinated with the company's over-all long-range plans for research and development, product development, market expansion, financing, capital budgeting, and management development.

How far ahead?

In their long-range planning, most companies operate on five-year programs which project their sales volume, plant capacity, capital budgets, and other key elements of the business. Some companies attempt to see ahead for ten or even fifteen years, but most feel that the crystal ball gets a little cloudy at this stage.

A company that has reaped the benefits of long-range planning is The Steelcraft Manufacturing Company, of Cincinnati, Ohio ($10 million sales). Says Executive Vice President Charles Levinson: "Medium-size companies are concerned more and more with long-range planning. Ten years ago, we never thought of the five-year plan. Today, that is the only thing that we have our sights set on—our five- and ten-year plans—but primarily a five-year plan because we feel that beyond that point it is pretty hard to predict. Since products change so rapidly, you can't really plan more than five years ahead."

Management consultant Charles H. Granger, a partner in William E. Hill & Company, says:

Planning for capital requirements has historically been the starting point of long-range planning in most companies. Building a new plant almost always involves a long-range forecast and plan. Sometimes this is done on a loose rule-of-thumb basis. In other cases, a detailed long-range plan is worked out with careful projections of potentials, share of market, product design requirements, and so on. This takes maximum advantage of long-range planning in the expansion of facilities.

Sometimes the owner-operator of a small or medium-size company has a long-range plan of sorts worked out informally in his mind. In contrast to this, many medium-size and larger companies have formalized long-range plans. They have a standard procedure for periodic revision and review. Long-range planning activities are included in the job descriptions of key executives. A vice president or staff man reporting to the president is in charge of coordinating long-range planning.

When a small company is growing to middle-business size, the emphasis is usually on either technology or sales. Only later does *planning* emerge as a function in its own right.

One of the basic criteria used in determining whether or not to go ahead with investing in a new plant is the expected savings resulting from the new plant. Plants are generally expected to pay off within about five years, although the amortization schedule runs 40 years.

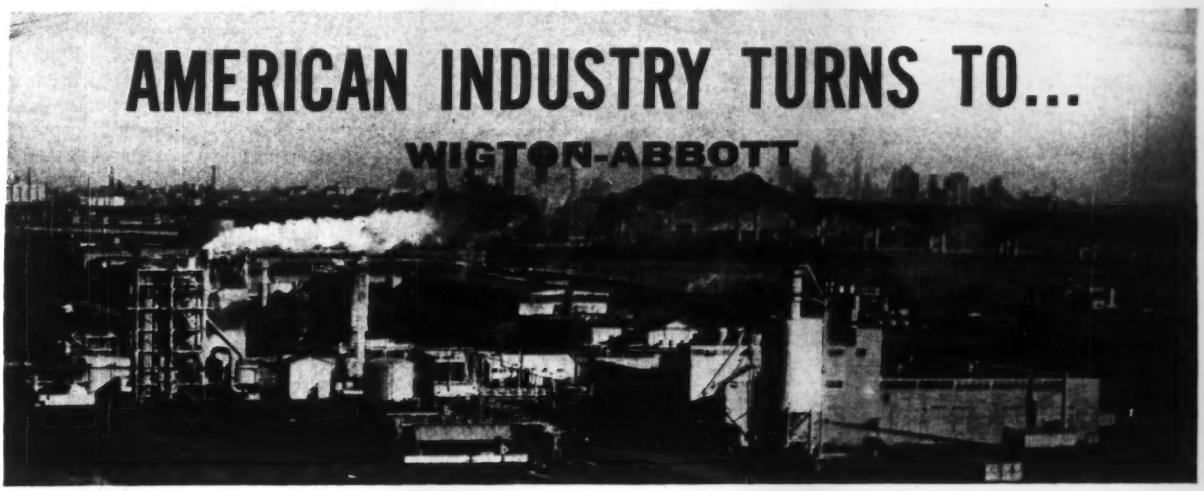
Some of the surveyed companies will not consider a new plant that doesn't offer a return on investment at least equal to that of the current earnings rate based on net worth.

For instance, no new plant proposals are considered by one large electrical equipment manufacturer unless studies indicate at least a 7 per cent return on net sales or a 20 per cent return on capital investment.

Building for building's sake

Optimism is a general characteristic of top management, and the urge to expand and display the company's growth in a spanking new building is a strong one. The executives who head up manufacturing, sales, and other company functions likewise are eager to have their departments grow.

continued on page 118



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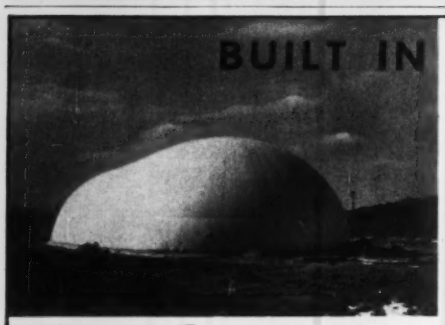

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To keep this "edifice complex" in check, top management itself—sometimes at the urging of bankers and other financial groups—is calling for feasibility studies of proposed new plants. These studies—which are carried out both by the top financial people within a company and by outside consultants such as Ebasco Services and Ford, Bacon & Davis—investigate every angle of the plant proposal. Starting with the market potential, the feasibility study carries through to the preparation of probable profit and loss statements and balance sheets for the new plant over a five-year period.

All the details of the two operating statements then are translated into cash-flow terms—the actual cash throw-off as the result of depreciation, amortization, and retained earnings—and projected for each of the next five years.

This planning cycle of five years also coincides with the useful life that a manufacturer of automatic equipment attributes to his machines, which will be made obsolete by new equipment at that time. So alert management is increasingly aware of the need for a quick recovery of invested capital (in the form of cash throw-off) before fast-moving technology casts both the equipment and the coordinated plant on the scrap heap.

How does a company know it needs a new plant? Some wait until there is a serious loss of business to competitors before investigating the production and distribution costs of their facility against potential changes. According to N. M. Martin, director of facilities planning and construction for IBM, it is then at least five years too late.

How not to do it

Very few small and medium-size companies systematically go about the job of determining the need for a new plant. Most often, small manufacturers approach the planning for a new plant from the wrong direction. Instead of assessing as precisely as possible the future shape of their markets, they concentrate on building a new plant merely to cut costs. And more frequently than not, the new plant doesn't cut costs as much as was hoped.

Another point where planning for new plants often goes awry is in estimating the time it will take to get the new plant into full production. If management underestimates the time

involved, the company may seriously damage relations with customers by failing to fill orders.

One expert in plant facilities planning advises: "The most accurate way to estimate the time involved is to have the company's engineers figure out how long it will take to move equipment from the old plant to the new and coordinate operations. This figure should then be multiplied from six to eight times. The result will come close to the actual time needed."

Companies are discovering that, when they go into the money market, the way is much smoother if they have a program for long-range planning.

About one-third of the 107 surveyed companies rely largely or entirely on their own internal resources for the wherewithal to pay for new plants. Retained earnings, plus depreciation and amortization reserves, are the most common sources of capital among these companies.

About one-fifth rely on some sort of long-term debt financing—from commercial banks, mortgage bankers, insurance companies, pension funds, and the like. Only seven of the surveyed companies use sale-leaseback arrangements to finance their new plants. Large companies use this device frequently to finance construction of warehouses.

Only five companies rely on straight leases for their new plants, while seven resort to new stock issues for the capital needs for major expansion programs.

Finding the money

In the past decade, several sources of funds have become increasingly important in providing management with funds for plant expansion—state development corporations, pension funds, insurance companies, charitable foundations, university endowment funds, investment companies, mutual funds, trust funds, and even, in certain dire cases, union funds.

Since the first statewide credit corporation was formed in Maine in 1949, thirteen other states have set up such groups, and fifteen others are now under consideration. These state units provide funds directly to industry at low interest rates and also provide funds to local nonprofit development groups seeking to attract industry. A complete list can be obtained from the Office of Area Development, U.S. Department of Commerce, Washington 25, D.C. END

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"It's like having the best brains of the business world on your board of directors," says President Ralph Simeone (left) of Chippewa Lumber Industries at Glidden, shown consulting with W. D. Kyle, Sr., Milwaukee, former president of Line Material Co.

Mr. Kyle and the 11 other "old pros" of the Advisory Board have helped more than 60 companies since the volunteers were recruited last year by the State Division of Industrial Development.

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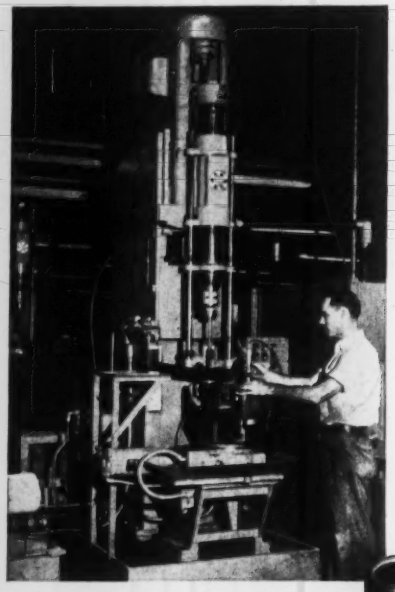

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SMALL COMPANY PLANS

continued from page 63

ney; a local banker, who could represent MPB to Boston banks; and the former head of Split Ballbearing Corp., with which MPB merged early in 1957.

These men have been of immense help either in providing the cash needed or suggesting ways to get it.

In 1955, several serious problems faced the company. Its plant wasn't built for precision manufacturing and assembly. Vibration was transmitted, making it difficult to hold close tolerances. There was an inherent cleanliness problem. Lack of closely regulated air conditioning made gaging difficult, lighting was not the best, layout was inefficient.

And even more pressing was the fact that market forecasts pointed to an expanding demand for MPB products. So Gilbert decided to build a new factory—created from the ground up for the production of miniature ball bearings. This plant would satisfy all complaints against the old plant; provide expansion; allow changes with least disruption; and have years-ahead design.

Raising the capital

By 1955, MPB had $100,000 in debentures, plus $175,000 in bank loans, on the balance sheet. It was clear there would be a continuing demand for the company's product.

A management group, headed by Executive Vice President Scranton, studied the problem and decided $500,000 worth of capital equipment was needed.

Gilbert discussed this requirement with his directors, who already had varying amounts of stock. The board felt that money needs should not be met by public sale of securities—if at all possible. They reasoned that the company had excellent growth potential and should avoid dilution of equity.

The board advised Gilbert to go it alone with a slight assist from outside. The stockholder group backed up the advice enthusiastically and purchased about $150,000 worth of 5 per cent convertible preferred as a demonstration of faith. Then, through one of these directors, Gilbert was put in touch with an investor who was seeking a non-dividend paying stock with good growth potential. This source provided the additional $350,000.

The total of $500,000 was to be used for capital expenditures, exclusive of the new plant, which was to be provided through another technique.

Through a sale and leaseback arrangement with Berkshire Life Insurance Company, Gilbert was able to build his dream plant at Keene, N.H. The key to the successful sale-and-leaseback negotiations was thorough preparation of information about the company's objectives, and specifically what a new plant would offer.

How MPB sold itself

The company put together a brochure on its history, containing reasons why the new plant was needed, how it expected to pay for it, what was in the future. Armed with the report, MPB was able to persuade a Boston bank to put up term money to cover construction costs and make the deal with the Berkshire Life Insurance Company.

With good planning, fresh use of materials and color, and air conditioning throughout, the plant was built for less than $15 a square foot.

Two years after it was completed an additional area—half as large as the original plant—was needed.

Another presentation was made to Berkshire Life Insurance Company which promptly accepted for the $400,000 addition. Another term loan was obtained to cover progress payments on the job. And finally, Gilbert, who needed $1 million to cover capital requirements in his rising market, got the money quickly from four institutional investors. One was a previous stockholder, two more came along on his recommendation, and the fourth heard of the investment opportunity at the last minute and asked in—so that the flotation was actually over-subscribed.

After this plant expansion, the company became increasingly dissatisfied with its product base. It sold about 85 per cent to the military and the remaining 15 per cent to the civilian market. Gilbert was eager for greater emphasis on civilian products.

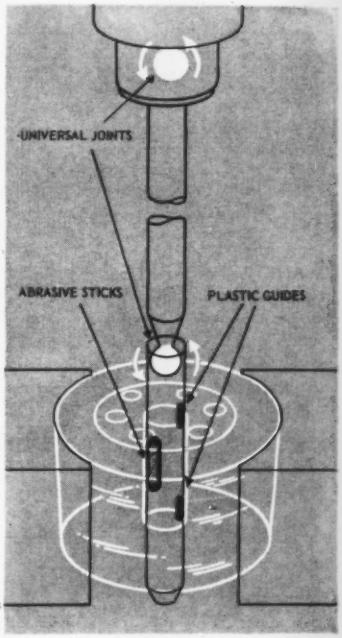
The opportunity came through a small Lebanon, N.H., concern, Split Ballbearing Corp., which manufactured an unusual ball bearing that has application in automation, materials handling, aircraft, and farm equipment. In fact, its market was just the reverse—85 per cent civilian, 15 per cent military.

Split had originally been MPB's

HOW MICROHONING Laminated Rotors Cuts Processing Costs

Emerson Electric squirrel-cage rotors are made of special "electrical grade" steel laminations and each lamination is coated with oxide insulation. In processing the rotor, the O.D. is turned concentric with the shaft hole. Then, in one operation, Microhoning accurately generates finished size and straightness of shaft hole without any change in hole location.

The Micromold tool has two universal joints in the drive shaft which allow the tool body to align itself with the shaft hole. Microhoning of holes is along same axis from which O.D. was turned.



For electrical and mechanical efficiency, assembled motors must have a uniform air-gap between rotor and stator of .006 inch to .011 inch. Because laminated surface is rough and close tolerances must be held, special guided Micromold tools are used. Plastic guides above and below abrasive sticks, control dressing of abrasive and assure generation of round, straight shaft holes.

Before installing Microhoning equipment, two operations were required to finish shaft hole—rejects ran high. Microhoning greatly reduced the amount of dynamic balancing correction required.

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parent company, and Gilbert held a minority interest in the company's stock and served on its board.

"It was more of an arms-length transaction than it may appear," says Gilbert. "We had to demonstrate to the Split stockholders that we would make better music as a team. This was anything but a captive merger."

Good deal all around

The Split acquisition was attractive for several reasons, in addition to the civilian-oriented products it brought into the MPB fold. It was in the ball-bearing field in which MPB had experience. It was near Keene, simplifying travel between the divisions. But even more important, Split had a patented product which Gilbert feels offers even more potential than the miniature ballbearings being made in Keene. "Both plants will move ahead fast," he says, "but we believe Split will outdistance MPB within a few years, because their product has tremendous market potential."

MPB was soon involved in integrating the Split Division into the company. "The big job," according to Gilbert, "is to speed up the process of public acceptance of the product by injecting dollars into sales promotion and research, and by providing more management than a company of its size could normally afford. You might say that we're trying to make eight-year-old bonded whiskey in three years.

"The Split facilities were cramped to the point where we had to start building a new plant almost immediately. But through the acquisition, we've got plenty of experience under our belts in planning and executing new acquisitions."

What about public ownership for MPB? "It's possible—providing our money needs can't be met any other way," says Gilbert. "But there are lots of other ways that have proved successful for us. Once a company achieves stature, it can go to the public in a much stronger position. The underwriting can be done more economically, since the stock has become, on its own, a saleable commodity."

The secret is, according to Gilbert, that as you prove what you are capable of doing as a company, it becomes easier and easier to get what you need for continued success — productive plants, capable personnel, and solid financial backing. END

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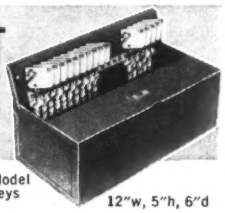

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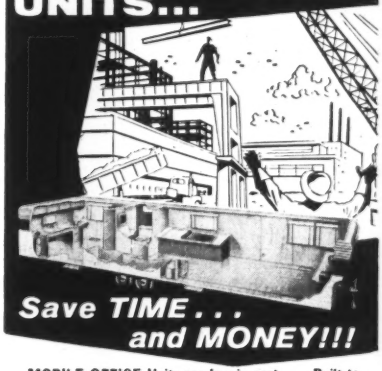

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DYNAMIC PLANT DESIGN

continued from page 88

cost. Numerous choices will be open, and the final decisions, based on the company's capital position, earnings record and prospects, and long-range objectives, will determine the kind of plant to be built.

Today, the variables in engineering-economic studies are more numerous than ever. On the one hand, more machines are available for special purposes, while on the other, most equipment is becoming more versatile.

Special-purpose equipment usually means lower operating costs which must be balanced against the need for payout from the output. This calls for careful present-value determinations of savings from capital investments, which, in turn, require consideration of taxation, depreciation policy, obsolescence, costs of funds, and possible labor cost differentials. All of these will affect design and layout.

Designing around the inventory

The leveling out of seasonal peaks in operations requires planned inventory control. And the level of inventories, of course, influences the very design of a new plant.

On the other hand, a larger investment in plant may make possible almost totally current conversion of materials, with inventories consisting almost entirely of raw materials, work-in-process, and finished goods in transit. This procedure, typical of the automobile industry, is possible in smaller companies where close attention is paid to scheduling, purchasing, handling, and traffic.

Also, before a plant is built, management must decide which products and components should be bought and which should come off the new production line. These are rarely open-and-shut cases. Aside from problems of quality control and dependence on outside sources, they require careful consideration of the effect on overhead absorption and hidden costs in executive time and in inspection and expediting controls.

It has become almost a cliche to say that modern plants should be designed around the product. Dynamic design, however, calls for a more imaginative approach than developing a competently engineered layout and "building walls around the work." Some revolutionary departures from a company's traditional ideas on lay-

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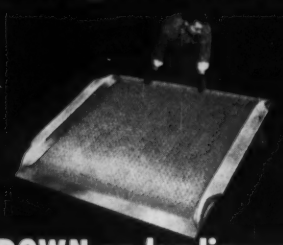

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out may result from a *selective work flow* approach.

In this approach, a statistical-engineering analysis is made to see if relatively few parts or operations account for the greatest portion of manufacturing activity. Then the choice of equipment and its positioning, materials handling, storage, and work flow are planned to fit those needs.

In one company, statistical analysis of the costs of components showed that 500 parts out of 25,000 accounted for 60 per cent of all manufacturing costs. A substantial cost reduction was achieved through routing and layout changes for the costly 500 parts.

Engineering work flow

Statistical engineering today provides new keys to other work-flow problems by weighing various alternatives. For example, a careful analysis of intermittent vs. continuous flow problems is in order before the plant layout details are jelled. With the data assembled for selective work flow, further analysis can be made for balanced loading of lines. This problem is tied up with closely controlled lead times, and must balance acceptable levels of inventory with set-up, handling, and storage costs, all of which are related to keeping maximum delays in shipments within predetermined probability ranges.

The integrated point of view must come into play here, since the optimum combinations of scheduling for lowest total manufacturing cost may not be within delivery guarantees required by the sales department.

With this type of analysis as a base, the first broad blocking out of space requirements will begin to form, to be tempered by accommodations and compromises called for by the requirements of the other specific result targets. Areas required for long-term and temporary storage, handling, and the like, then become merely a matter of engineering arithmetic.

The matter of flexible equipment layout immediately raises in management's mind the problems of automation. Are the two concepts in conflict?

Leaving aside such installations as huge refineries or the "Detroit type" of automation, tape-controlled machines may well make possible the reduction or elimination of expensive and time-consuming set-ups from the manufacturing cycle. Shorter lot runs and reduced costs result.

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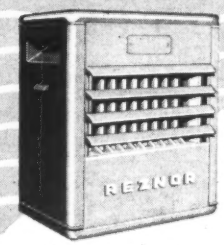

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dling since World War II, reflected in increased maneuverability of equipment of all types, create a whole new spectrum of engineering choices, all of which affect plant design and layout. Since, for example, today's fork trucks lift much higher, companies can come much closer to full utilization of overhead space. The greater speed and capacity of handling equipment means that as much as one-third of handling labor can be saved compared with fifteen years ago.

These considerations call for exacting analyses to achieve the best *net* results. Investment in the newer equipment should be balanced against the properly assessed charges of cubage saved and reduction in handling labor—all of which is burden.

Management increasingly recognizes materials handling as a continuous chain from suppliers, through the plant, to the customer's shelf. This means that costs and speeds and economies must be weighed for a variety of choices—unit loads, modes of storage for palletizing, shipping costs of pallets, and the like.

Make room for maintenance

Two kinds of maintenance must be considered—equipment and building. In maintaining equipment, space for ease of access for repair is as important as ease of access for operation. And in a sprawling plant, the spotting of maintenance depots in strategic locations should not be overlooked.

To control building maintenance, detailed analysis of the cleaning costs and repair expenses for various types of interior and exterior finishes, window areas, roofing, and, most importantly, flooring, should be made before design decisions are formed. Choices on all of these matters can be put on a factual basis.

Flexibility for expansion, in a soundly engineered building program, is more than an over-all specification that contemplated operations are to take, say, 65 per cent of new-plant capacity. The objective should be *selective* expansibility.

An analysis of product specifications and expected product variation may reveal the limits of product-line requirements and indicate the kind of expansion that should be planned.

When care is taken to have enough elbow room, layout can be arranged so that the "modular principle" can be applied in both building and equipment for later expansion. END

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DESIGN FOR PROFIT

continued from page 65

Among the specific effects of automation on plant design and layout reported by the surveyed companies are these:

- New buildings are longer and narrower than old buildings
- Manpower per unit is lower, resulting in less space for employee service facilities in new plants
- One-level plants, particularly with wide column spacing, are essential
- Semi-automatic packaging and large unit-load shipping, resulting from automation, call for more building area for these functions
- A smaller share of the entire floor space is required for production area, leaving room for needed control, materials-handling, and storage areas
- Maximum flexibility in layout and utilities is essential, resulting in more complicated requirements for power distribution
- Provision is required for economical plant expansion and the rearrangement of departments at minimum cost
- More space is needed for materials handling equipment so that the flow of material is as continuous as is practicable.

The approaches that companies use to put down the best possible plant are varied to suit their particular needs. About half the surveyed companies bring the architect into the planning picture at the very beginning —even before the internal layout is on paper.

The other half prefers to have their plans completely jelled—by using their own industrial engineering departments or an outside engineering consultant—before the architect enters the planning. Also, when it comes to working with the construction contractor, there is a diversity of approaches. Most companies insist on keeping tight control by working step-by-step with the contractor, while others turn the chore over to outside design consultants.

Do-it-yourself construction

A common approach is to turn the entire project—layout specification, architecture, and actual construction contracting—over to an engineering company. Some of these engineering companies—such as the H. F. Campbell Company, Detroit—even offer financing assistance and will accept old plants as trade-ins on new ones.

In contrast to this "turnkey approach" to plant construction—letting an outside concern handle the entire operation—some companies, particularly those in heavy industry, make their own detailed design specifications, subcontract the various phases of the construction, and install the equipment themselves.

Most frequently, it is the plant engineering staff of the manufacturing division that is made responsible for liaison with the contractor and the inspection of the work in progress. To achieve coordination of designers, architects, and contractors, many of the surveyed companies set up special committees in which the engineering groups play a prominent part.

Other companies — American Greetings Corp., Cleveland, is an example—put such specialists as civil engineers on the payroll.

George J. Martin, of Baltimore Contractors, Inc., reports:

> The plant engineering department, which has been neglected in most planning for new plants, is being consulted more and more frequently by intelligent management. Also, in some cases, management now gives consideration to the ideas of the supervisory personnel. The production supervisor's cooperation can be encouraged by giving him a voice in the planning. And the plant engineer should have a great deal to say about what goes into the installation of the equipment, the aisle spaces, the mechanical features, and materials handling. This would eliminate the allocation of insufficient storage and production space and the attendant problems resulting from lack of thinking and lack of planning with the people directly involved in plant engineering.

A place for everything

An example of this type of planning approach is the round-table conferences which the National Biscuit Company sets up for its foremen to get their suggestions on how to avoid in the new layout and design the headaches they have been living with in the old plant.

Indicative of the precise planning that is being attempted in plant facilities is the work of the director of facilities planning in a New England electronics manufacturing company. He is attempting to come up with a formula which would relate the company's billings to the plant's area and the number of employees.

Automated equipment, which usually costs three to four times more than the building, has meant that new plants must be designed as a functional shell for the equipment.

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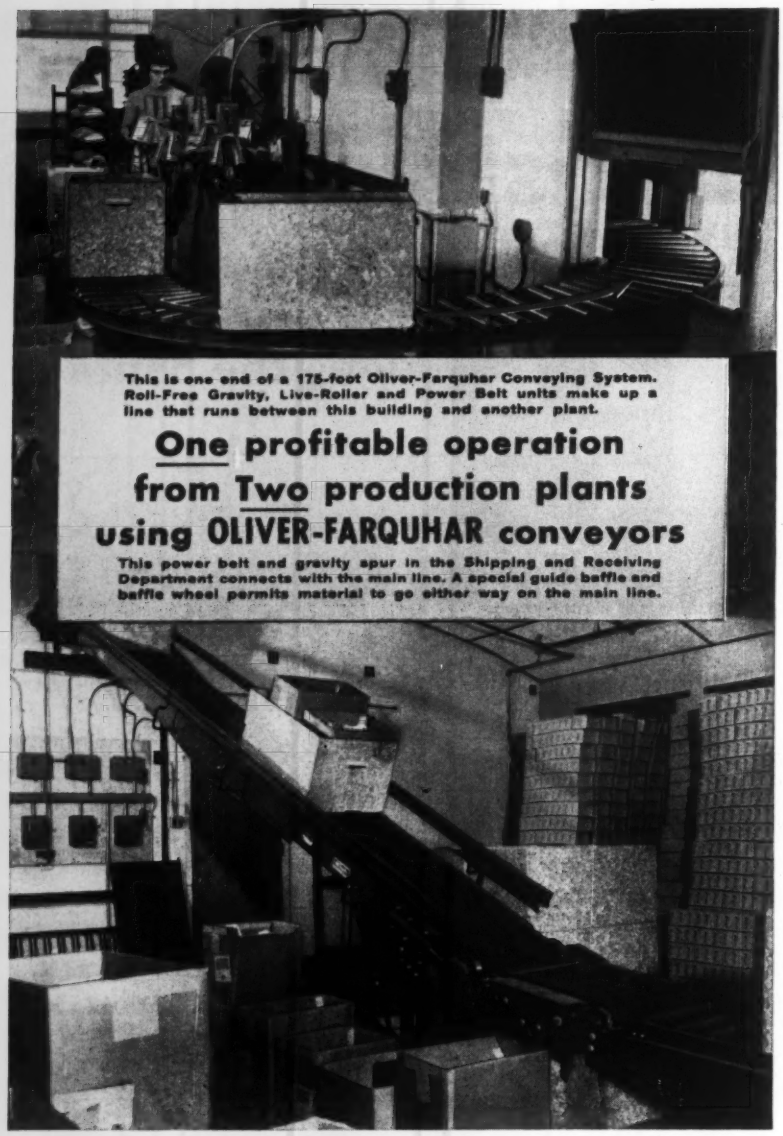

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In today's plants, all elements—men, materials, machines, controls, and materials handling equipment—must blend into a smooth-working organism as never before. A breakdown at any point could be crippling in light of the heavy investment in automation.

Says a top executive at the Cessna Aircraft Company, Wichita, "A plant used to be referred to as a building, but now we know that it must be planned more as a big machine with room for additional parts."

Don't overdo it

Among the surveyed companies there is an increased awareness of the importance of economical expansibility. However, some companies are discovering that they can go too far in building in provisions for flexibility. As N. M. Martin, director of building construction for IBM, points out: "We were at one time putting in steel for live-load suspensions at any panel point throughout the building, on the theory that somebody, sometime, in laying out his plant operations, would want to put in an overhead monorail, and we would have the steel all in place so he could tie it in. Later, we found that it is a lot cheaper to beef up the steel at the panel points when and where it is needed, than to buy the insurance of built-in flexibility."

Other companies are also aware of the dangers in spending too lavishly for full flexibility. Executive Vice President Charles Levinson of the Steelcraft Manufacturing Company says:

> The idea of trying to be flexible enough to expand for every conceivable contingency of product mix is becoming a thing of the past. You have to gear your plant specifically to a particular product by projecting the life-span of the product and developing your programing, your tooling, your techniques around that particular product. Then you have to give yourself some latitude in the area of mechanicals, such as power distribution systems, so that you can move machinery and equipment around. Give your plant adequate flexibility in materials handling, which today is our most important problem in cutting in direct labor costs.

Robert P. Brooks, vice president of Trundle Consultants, Cleveland, advises: "Many companies build a new plant too hurriedly and end up with one that is too large for their needs. Then they compound the error by spreading out their equipment over the entire plant, resulting in an excessive distance for the product to travel

in the production cycle."

Very few of the surveyed companies have a standard formula or rule of thumb for the amount of space for expansion to be built into the new plant. Those who have a formula, based on sales projections, call for 20-30 per cent expansion.

Most companies make it possible for the plant to reach full capacity (which usually matches sales projections five or ten years ahead) with one-shift operations and not too much strain. Should the sales goals be reached earlier, the company has several alternatives—added shifts, physical expansion, added production equipment.

Generally, the surveyed companies report they build the means of *economical* expansion into the plant and provide the land for it to take place.

The companies generally strive for the most potential expansion with the least total increase in the cost of the entire structure. The new techniques in construction developed in the last few years—such as curtain wall, which is generally less costly than masonry—help to achieve both these goals simultaneously.

The public picture

The modern plant also has become one of the primary means of projecting the corporate image to the public, customers, community, and the company's own employees. Never before was so much money spent on exterior lighting, landscaping, and ornamental entrances as in the past few years.

As Baltimore Contractors' Martin puts it:

> There has been a complete departure from the hulking, drab, multi-story structure to the one-level, multicolored building set back and floodlighted on a beautifully landscaped setting. In interiors, color dynamics has been applied to production areas and automation has replaced manual operation to such an extent that production areas have taken on an entirely new look.

How much growing space?

The fact that most of these sprawling modern plants occupy a fraction of the available site is testimony to industry's faith in future prosperity. About half the 107 surveyed companies have rules of thumb for the proportion of the building site that the new plant should occupy.

The largest group—thirteen in number—devotes 15-20 per cent of the land area to the plant. Twelve report that they generally set up 50 per

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cent of the land area as the outside limit for the plant, while nine hold it to less than 10 per cent, and another nine place the limit at 25 per cent of the area. Eight set the limit at 30 per cent.

The other half of the surveyed companies report that it is impossible to set up limits because of a variety of variables, such as the number of employees, number of shifts, transportation facilities (all of which affect the parking area size), provisions for rail sidings, access roads, outdoor storage, landscaping, and zoning requirements. But, of course, the primary consideration is the projected expansion. S. K. Rudorf, assistant to the manufacturing vice president of A. O. Smith Corp., Milwaukee, makes this point: "We try to buy more land than even the most optimistic forecasts could require. Land is relatively inexpensive. Why take a chance on running short?"

High-priced economy

In recent years, many companies have failed for economy reasons to obtain enough land for their plants. They have found it to be a costly mistake in the long run. For instance, the vice president of a Midwest metal parts manufacturing company says: "We have two plants three miles apart. It would be a real economy to have them together, but we tried to save money on the original investment."

New plants can't exist in suburbia without sufficient parking space—another reason for building on a more-than-adequate site. A few years ago, management in plants without public transportation allowed about 40 parking spaces for every 100 employees. Additional space was allowed for shift overlap and visitors. But the new DR&MI survey of 107 companies shows better than 50 parking spaces for 100 employees today.

The number of parking spaces provided by the surveyed companies ranges from twenty to 120 for each 100 employees. Those at the lower end of the range are generally in big cities, where public transportation is available, while the companies that provide a space for every employee are usually in Florida or the Far West, where the automobile is the principal form of transportation.

The pressure of new technology has forced many companies in recent years to attempt to modernize old multi-story plants, but frequently the

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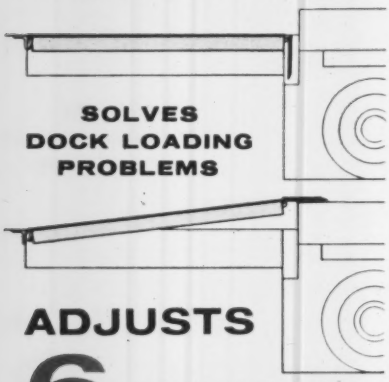

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Plastics at Work in Industrial Building

Construction today is undergoing the most rapid and far-reaching technological changes since man began shaping clay. There are two major forces behind these changes: the adoption of mass production techniques and the impact of new man-made materials of construction.

Within the next three or four years there will be widespread use of prefabricated and factory-assembled, multi-purpose structures and components. Construction will move from the field to the factory. Plastics seem well suited to help establish a building technology which will put the construction industry on a true production-line footing.

For several years now, the plastics industry and the building industry have been exploring plastics' potentialities as sound construction materials. For example, at the laboratory building of Monsanto's Inorganic Chemicals Division in Creve Coeur, Mo., plastics were designed into every conceivable, practical application of the three-story, 70,000-sq.-ft. building, a conventional structure very much of today. In fact, 80 per cent of the exterior is plastic.

The significant properties of plastics which make them attractive for structural applications are: high strength-to-weight ratio; resistance to corrosion and wear; controllable thermal and electrical resistance; complete color penetration; light-controlling properties; easy formability and adaptability to production line or factory assembly.

Because of plastics' versatility, the shape of correctly designed structures can be a function of their use, rather than of the form of the materials from which they are constructed. Plastics also offer the building industry an opportunity to circumvent many of the familiar limitations of the past.

—R. K. Mueller, *vice president,* Monsanto Chemical Company

results have been much below expectations. About one-fourth of the surveyed companies have attempted such modernization in recent years, but the number reporting poor results outnumbered the others by three to one. In fact, five of the six companies whose modernization efforts were satisfactory were in process industries where materials handling is not critical.

Most of the companies that met disappointment in trying to modernize multi-story buildings attribute the poor results to the inability of the reworked facility to take advantage of new techniques in materials handling.

The Griffin Wheel Company has been disappointed with such modernization efforts because the company was "forced to make many compromises to fit new processes into existing facilities."

Several of the surveyed companies report that they look upon such modernization only as a last resort. It is something to be turned to when transportation, labor, or some other factors tie them to a particular site.

In old multi-story plants, the movement of materials from one production operation to the next was largely determined by the position of the heaviest equipment, such as punch presses, which were placed on the only floor—the ground floor—that would support them. This is in marked contrast to the modern plant in which no such preconditions box in the flow of materials.

But technological changes are occurring that may make it possible to salvage the old multi-story plant. Some companies are discovering that

Portrait of a family with a future!

Fact is, there's a bright future for two Michigan families. . . . The Donald R. Kalso family joined the Detroit Edison family of stockholders as its 100,000th member. For the Kalsos, it is an important venture into stock ownership. For Detroit Edison, it is evidence of the continued strong support from its owners.

Before the Kalsos made their decision, they took a careful look at their future investment. They tell us they liked what they saw, for it represented to them a sound company with an almost unlimited growth potential. Detroit Edison's electrical system now has a capacity of nearly 3.5 million kilowatts and serves a million and a quarter customers. Plant investment is over $1.1 billion.

The dividend record looked good, too. Detroit Edison has paid 199 consecutive quarterly dividends. In 1958 over $25 million was paid to shareholders at $2.00 per share.

This is only part of the progress story. For the entire family of stockholders and the company, each new chapter brings greater opportunity to grow and prosper along with the area Detroit Edison serves in Southeastern Michigan. The whole story is told in the Annual Report. It makes good reading. For a copy write—

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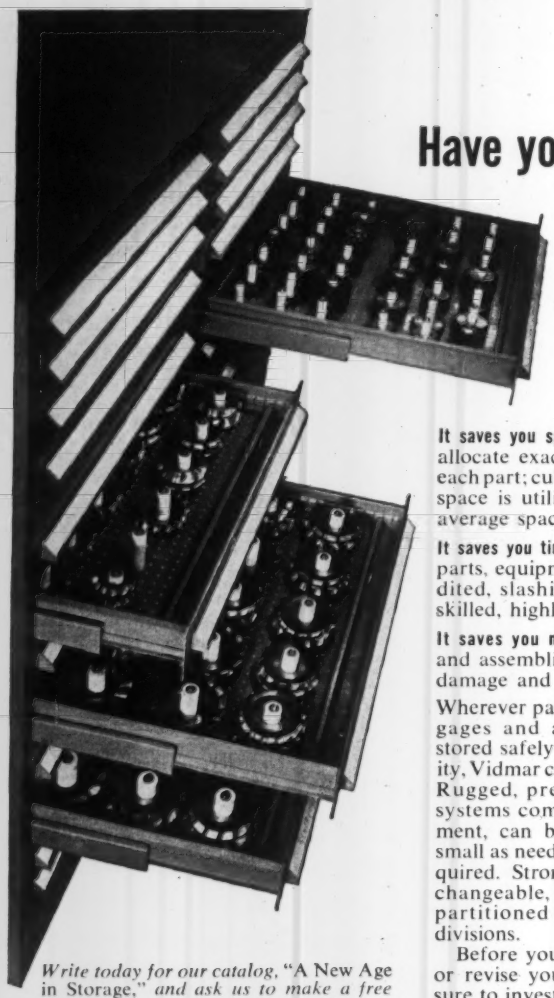

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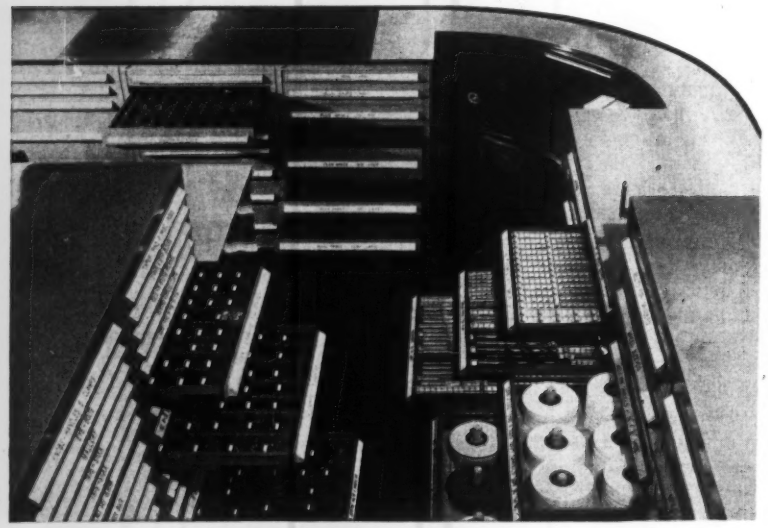


Vidmar *Division of Volkert Stampings, Inc.* INC., WILLIAMSPORT, PA.

the installation of vertical conveyers eliminates the bottlenecks caused by the inability of elevators to handle the flow of materials in old plants.

The job of modernization—whether in multi-story or one-level plants—is a monumental one. E. J. Hanley, president of Allegheny Ludlum Steel Corp., recently estimated that the cost of the modernization that needs to be done in industry to insure future growth runs to about $95 billion.

Automation has, of course, boosted the cost of new plants, as several companies confirm. But the architectural elements—framing, siding, footings, and so on—account for a smaller proportion of the entire cost today.

There is a considerable diversity in the cost per square foot of new plants (not including land or production machinery) reported among the surveyed companies. Costs depend on industry, location, and type of building. The figures most frequently mentioned by metal-working companies fell between $12-$14 a square foot.

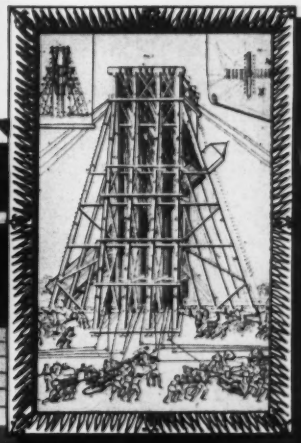
Proving ground for construction

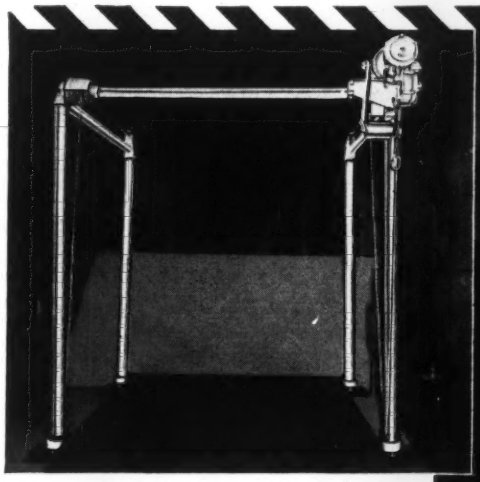
Since industrial construction is perhaps the most cost-conscious segment of the entire building industry, it is here that new approaches are frequently tried. A New York and Los Angeles architect, Welton Becket, says: "The industrial building is increasingly the proving ground for advances in construction techniques. Plants are in areas that provide more freedom of movement and are less hampered by local building codes. Also, plant builders are more inclined to experiment in methods of cost-saving than are other builders."

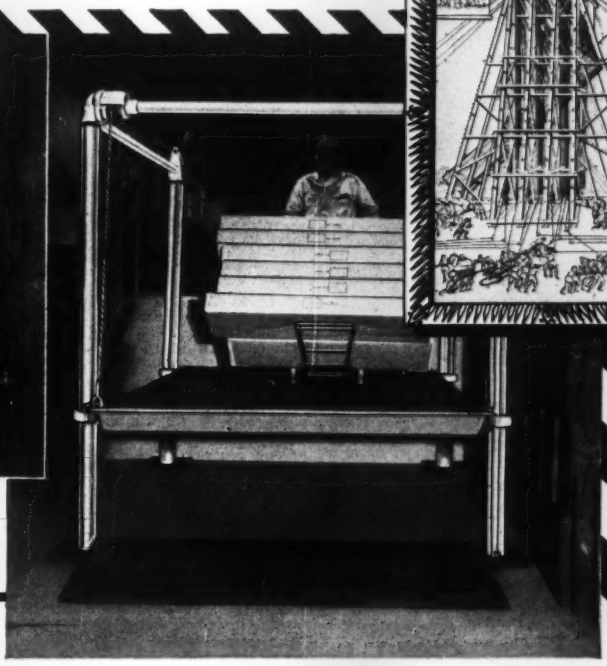
To make sure that they are getting the most from the plant construction dollars they spend, companies use a variety of checks and controls, such as setting up formal facilities planning. However, most of the 107 surveyed companies still use competitive bids. Very few of the companies report that they work on a cost-plus basis. Most seek about three bids.

Some companies—the Ruberoid Co., New York, for one—make design cost comparisons by checking similar structures and gathering construction cost data from other manufacturers. Others—such as Pendleton Tool Industries, Inc., of Los Angeles—compute the cost of doing the construction work themselves and measure this against the lowest competitive bid before a decision is made. END

It was horse- and manpower then . . . it's GLOBE HANDLING now. The Fourth Century Romans raised an obelisk in the Circus Maximus with horses and men. Today Globe Electro-Loaders do the same thing—faster, easier and cheaper.
An 8½x11 reproduction of this engraving, from Jean Rondelet's "Art of Building" published in 1842 will be sent free on request.







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Around the Round Tables

TO LAY a solid ground work for this Special Report to Management, the editors conferred with almost threescore experts in day-long sessions around the country. Participants at these editorial round tables ranged from engineers to company presidents.

Through informal give-and-take, actual problems that are plaguing management today were tossed on the table for consideration and sound solutions were hammered out.

Main items on the agenda at the New York round table were management's problems in planning and financing new plant facilities. In Cleveland, the participants discussed the problems involved in plant design, layout, and construction, while the Chicago sessions were devoted to new techniques of plant location.

In New York

F. F. Bahm
Royal McBee Corp.

Lloyd Black
U. S. Department of Commerce

Francis P. Brennan
Massachusetts Business Development Corp.

Arthur Dixon
Dixon Chemical and Research Company

C. J. Faherty
Prudential Insurance Company of America

A. L. Foscue
Union Carbide Corp.

Alfred J. Gagnon
Booz, Allen & Hamilton

Howard Gleason
Stromberg Carlson Company

R. J. Halloran
York Corp.

John H. Holton
Carrier Corp.

Robert E. Johnson
Western Electric Company, Inc.

Leroy Jones
Connecticut Development Commission

Stan Loring
S. D. Loring Company, Inc.

N. M. Martin
International Business Machines Corp.

Fred Meyer
H. B. Maynard & Company, Inc.

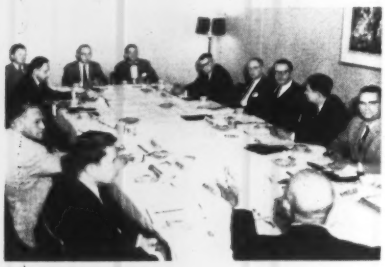
Frank P. Minnelli
Yale & Towne Manufacturing Company

Carl Petrasch, Jr.
Ford, Bacon & Davis, Inc.

Robert Schlesinger
Ebasco Services, Inc.

William C. Simonson
George W. Helme Company

John Wirth
Wirth Management Company



In Cleveland

Charles Burress
Wonder Building Corporation of America

Walter Degree
H. F. Campbell Construction Company, Inc.

Quentin Dobras
General Electric Company

Robert L. Fairbank
Towmotor Corp.

Charles Levinson
Steelcraft Manufacturing Company

George J. Martin
Baltimore Contractors, Inc.

Edward Taylor
Cragin, Lang, Free & Company

J. L. Tugman
General Electric Company

Herbert Tumin
Monsanto Chemical Company

Theodore Wright
Bostitch-Ohio, Inc.

In Chicago

James H. Beaumont
A. E. Staley Manufacturing Company

Richard L. De Chant
Cleveland Electric Illuminating Company

P. F. Estes
Commonwealth Edison Company

Maurice Fulton
Fantus Factory Locating Service

D. A. Hawkins
Westinghouse Electric Corp.

Frederick J. Herr, Jr.
Central and South West Corp.

Harold B. Hess
Harold B. Hess & Company

Ernest L. Johnson
State of Illinois

John Kirkpatrick
Arthur D. Little, Inc.

Frank Nelson
Rock Island Lines

George Payne
U. S. Department of Commerce

Robert Perry
U. S. Department of Commerce

Paul J. Pfister
J. B. Pfister Company, Inc.

Otto W. Pongrace
Ford Motor Company

E. F. Rousch
Kellogg Switchboard & Supply Company

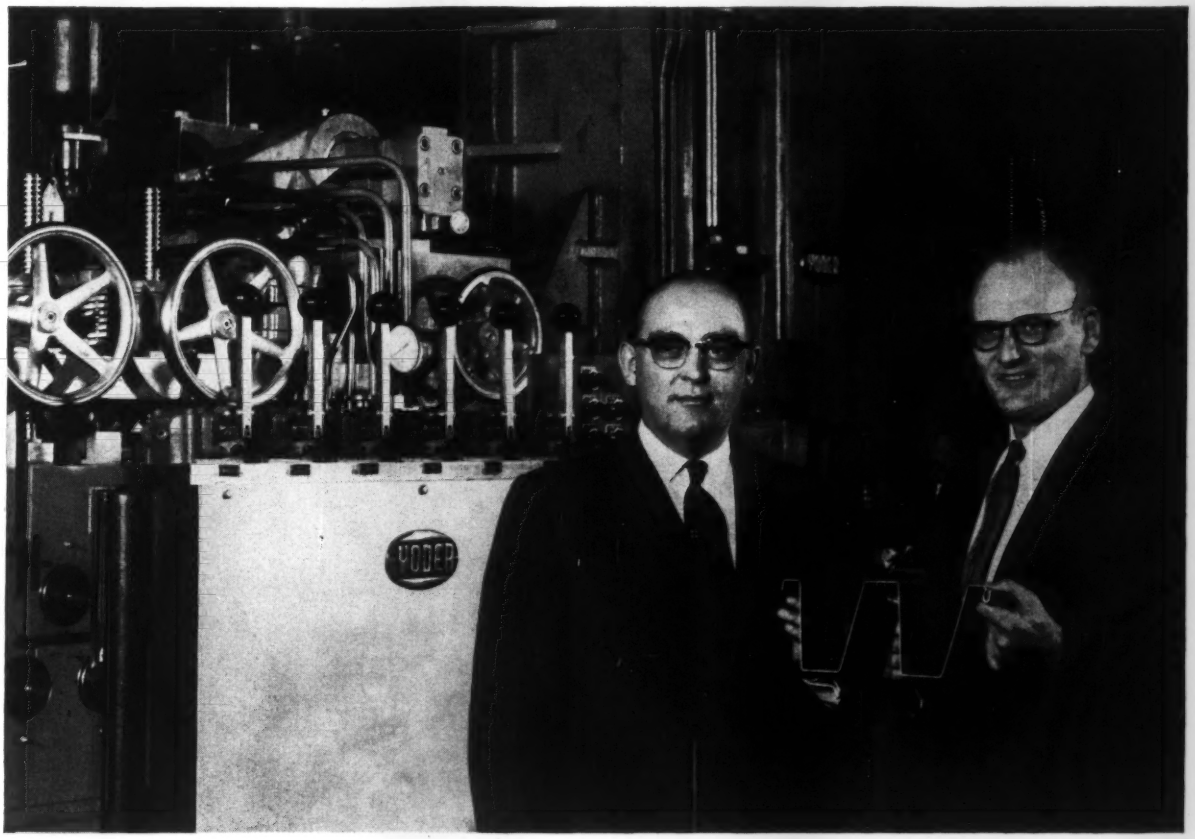
Lucian Schlimgen
State of Wisconsin

J. G. Starkey
Santa Fe Railroad

F. Clinton Toal
Southern Railway System

Charles McN. Towle
New York Central System

Reprints of this Special Report to Management, "Planning Tomorrow's Plants," are available at 30 cents each from Reader's Service Department, Dun's Review and Modern Industry, 99 Church Street, New York 8, N.Y. Please send payment with order.



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Say Douglas O. Yoder, President, (right) and Edmund H. Kanzenbach, Treasurer, (left) The Yoder Company, Cleveland, Ohio

Douglas O. Yoder, President of The Yoder Company, Cleveland, leading manufacturer of cold rolled forming machines and electric weld tube and pipe mills, says that Heller working funds were vital to the growth of his company.

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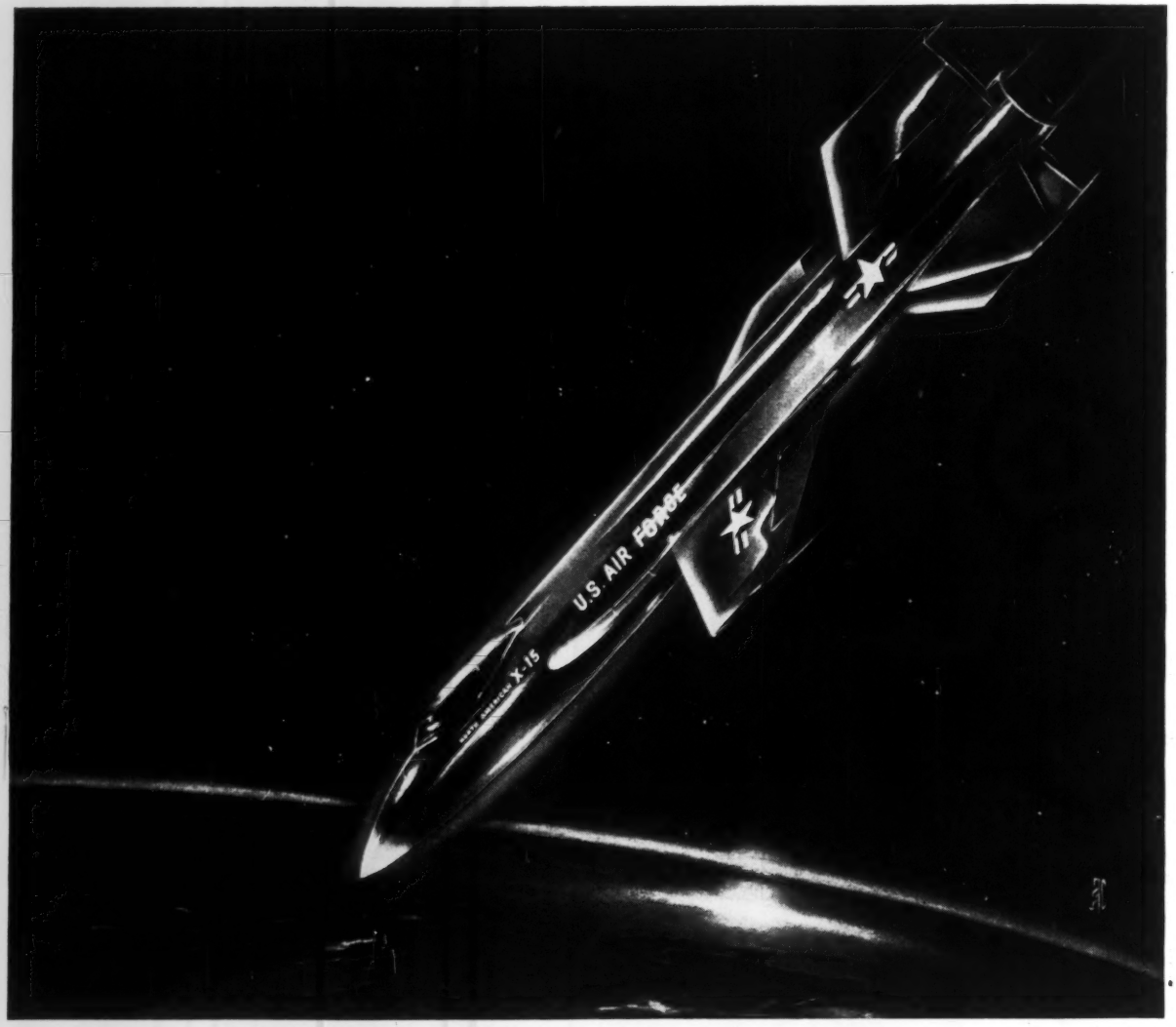

Nosing its way down to earth, X-15's skin of a high-Nickel-containing alloy will glow with the dull cherry red of a tossed rivet.

Inco-developed alloy to help X-15 carry first man into space

Alloy perfected by Inco's continuing research program will help new rocket plane withstand destructive heats

When the first manned rocket plane streaks in from space, temperatures may build up to as high as twelve hundred degrees.

The ship's nose and leading edges heat to a dull glowing red in seconds. At this destructive temperature, X-15's metal skin could weaken, could peel off.

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Battle Against Air Pollution

Managing Creativity; Helium for Industry; Heat Reclamation

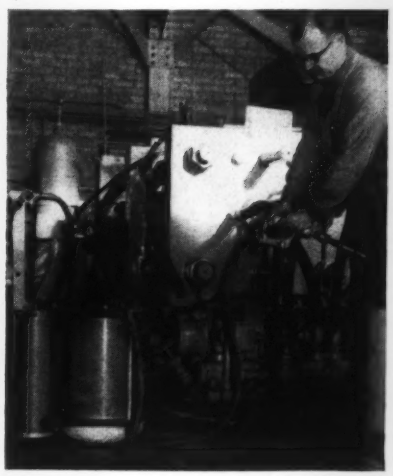
THE NATION'S growing concern about the damage to health and property caused by air pollutants is resulting in the creation of new counteracting equipment and materials. The most impressive are the improved car exhaust systems developed through the cooperative efforts of the entire automobile industry. Another major step is the increased use of electrostatic dust precipitators by industry and the power utilities. The major contaminant, unburned hydrocarbons, has, of course, been studied for years. But one of the most noteworthy recent advances is the creation of materials which resist ozone, an atmospheric contaminant getting belated attention.

After five years of effort, the auto industry's researchers have come up with three experimental exhaust treatment methods capable of reducing undesirable hydrocarbon emission by 60 to 90 per cent. Two automobile manufacturers use new catalysts that are not quickly rendered useless by the lead in gasolines. These catalysts are similar to those in industrial truck exhausts. However, these in-plant vehicles run on unleaded gas. The third exhaust system incorporates an after-burner and was developed at Thompson Ramo Wooldridge, Inc., in smog-bound Los Angeles. The catalyst systems were developed at Ford Motor Company and at General Motors Corp., in cooperation with Oxy-Catalyst, Inc., Philadelphia.

Ozone, which is especially damaging to rubber, is a highly reactive gas formed when three atoms of oxygen link to form a molecule. Ordinarily it exists in harmless concentrations, which may even help oxidize other pollutants. But in Los Angeles it has been measured in harmful concentrations, although it only takes 100 parts per million to mean danger. Electric sparks are a proved generator of ozone, but they are not the only cause in big cities.

The answer to ozone, at least for rubber-users, is synthetic rubber or rubber treated with ozone-resisting compounds. Du Pont produces two synthetics that are not attacked by ozone. They are neoprene and hypa-

BEFORE: *The dust and chips produced when maintenance men have to drill holes in masonry floors are a nuisance in plants and offices and intolerable in most labs.*



AFTER: *A new hollow drill that "inhales" the dust and chips and catches them in tanks is the solution. The $555 system is made by Thor Power Tool Company.*

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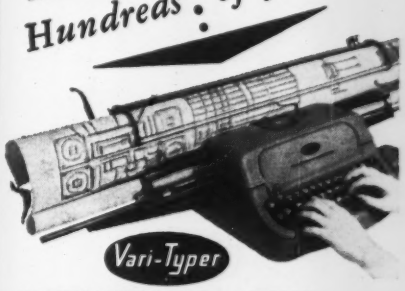

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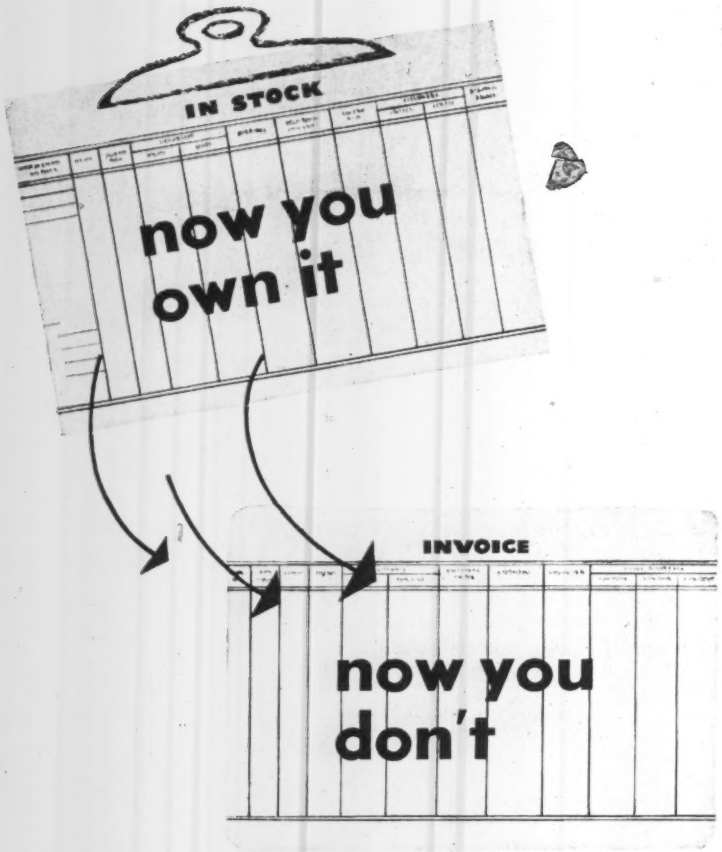

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lon. Recently the Dayton (Ohio) Rubber Company developed special ozone-resisting compounds, which it adds to certain products.

Cultivating Creativity

Finding and nurturing creative individuals is the American research administrator's greatest problem. This was the apparent consensus at the recent American Management Association special conference on "Gearing Research and Engineering to Profit Goals." The second most pressing problem appears to be how to provide for experienced, mature technical people without assigning them to administrative positions which they may not be prepared to handle.

Many solutions were offered for the first problem. Dr. Irvin Travis, vice president for research and engineering, Burroughs Corp., advocated careful matching of the man to the task at hand. He urged that it be diplomatically suggested to researchers that they seek jobs elsewhere when the company won't climb on some hobby horse of theirs.

C. E. Paules, vice president, Esso Research & Engineering Company, Linden, N.J., told how his company drew up a new organization plan to provide higher salaries for senior professionals without giving them executive functions. Matching each management level, the "senior scientist" positions call for the same pay and prestige benefits as the equivalent managerial positions, without requiring administrative duties. This is an increasingly popular management technique which many companies, such as RCA, have adopted.

Helium Use Rises

The formation of the first private company to extract helium from natural gas underlines the growing importance of this inert gas to industry. Helix Company, Sunray, Texas, was jointly formed by Northern Natural Gas Company, and Air Products, Inc. Helium is widely used in welding aluminum and other metals. When its only use was in lighter-than-air craft, production of helium was a Government monopoly.

Cutting Heating Costs

The construction of what is claimed to be the world's largest heat reclama-

tion installation points up the cost-saving aspect of this type of equipment. Designed to recover heat from waste water and dye liquors at Cannon Mills, Kannapolis, N.C., the eight Patterson-Kelley heat reclaimers recover 83 million BTU's an hour. This heat can be used elsewhere for space heating.

Plastics Cut Design Time

Design of metal parts may be simplified with a new stress analysis system using epoxy resins. Epoxy models of the part are cast whole or glued together, heated to a critical temperature, loaded, then slowly cooled to room temperature with the loads acting. After the loads are removed, it is found that the strains are locked or "frozen" into the model. Slices taken from the model are then examined in polarized light and the stresses computed.

The technique was developed by the Walworth Company, New York, to improve the design of its line of valves and pipe fittings, but it can be applied to any metal product. The epoxy resins are particularly valuable for this job because they have adhesive properties. Therefore, models too difficult to cast whole can be built up in sections.

Harnessed 'Copters

Vertol Corp., Philadelphia, is developing equipment for harnessing together two or more helicopters to lift very heavy loads. Although the immediate application is military, the technique could perform herculean tasks for industry. For example, a huge, disabled machine could be lifted out through the roof of a factory when the only other alternative is time-consuming disassembly. Vertol is creating big metal harnesses for teams of up to six whirlybirds. The pilots of the helicopters coordinate their movements by means of radio.

Invisible Advantage

Dozens of American manufacturers are increasing sales by adding a feature to their products that cannot be sensed. The sales-stimulant is a chemical that destroys bacteria. Available from Sanitized Sales Corporation of America, New York, it goes into many products which come in contact with the human body. —M.M.

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Sales Training for Stay-at-Homes

The Case of the Fickle Consumers

THE TRADITIONAL purpose of sales training is to get the order-chasers in shape to pursue the quarry. But as the chase becomes more competitive, the tools of sales training are also being used by the stay-at-homes.

For instance, at the Carrier Corp., Syracuse, N.Y., 54 men from the engineering, order-handling, and technical services departments have completed an intensive twelve-week sales training program similar to that prepared for salesmen.

However, it varied from the regular program in several important respects. For one, the idea of a sales training course for non-sellers was originated not by management, but by one of the company's engineers, whose idea got quick acceptance from co-workers.

They agreed they could make themselves more valuable to the company by learning about the sales problems and approaches involved in marketing the equipment they designed and serviced. Another difference was that this training program was conducted after hours, not on company time.

The organizing chores were left up to those men who wanted the course. Before it began, sales training director Ken Vaughn warned the engineers and others: "This will be on your own time and will run for at least twelve weeks. You'll have to organize the meetings yourselves—including all the work of setting up and running projectors, getting out notices, and taking attendance. There is no entertainment involved. This is just a chance for you to learn something." The sales training department, however, made available the same materials and instructors provided for the regular sales trainees.

What have been the results of this unusual program? First, it has given the participants a real opportunity to gain experience in the techniques of preparing and running meetings effectively. Since the completion of the course, application engineers have put their training to use in conducting meetings at which new lines of equipment are demonstrated for distributors' salesmen.

One of the service engineers points out another way the course has benefited him: "It helps us to sell ourselves and our ideas better to the boss and to others."

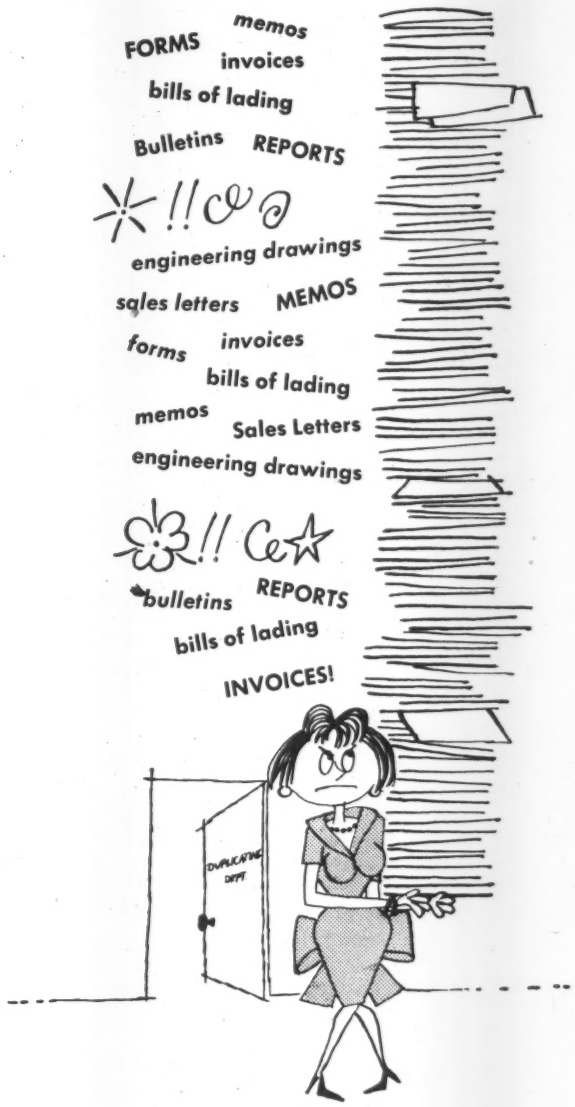
The manager of the order-handling department stresses that the training was a help to men in his department who deal directly with distributors and are always selling the company in one way or another. Several promotions have come to those in various departments who took the course.

After the completion of the sales course, the after-hours students decided to study other subjects. At their own request, they went on to fundamentals of engineering, taught by members of the class. Finishing this, they have now begun a course in business management. Class members

AT THE CONCLUSION *of the course, one of the students tries to sell the instructors on the merits of an air conditioning installation. Meanwhile, a tape recorder picks up his sales talk for playback later on.*

RIGHT: *Engineer Gene Valerio convinces executives of the Carrier Corp. sales training department that the company also would benefit from a sales course for engineers and other non-sellers.*

BELOW: *While the instructor calls for an answer to a specific sales problem, the engineers and other students prepare to grade the response of one of their classmates.*



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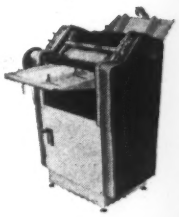

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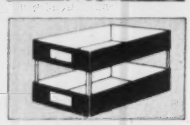

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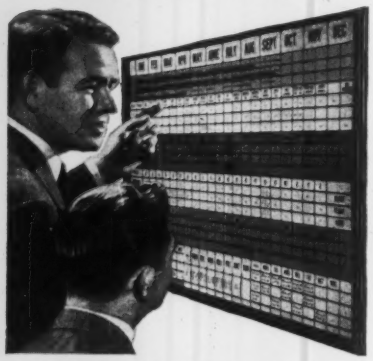

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CARRIER *engineer Dick Mehalick says: "When we design an appliance such as a room air conditioner, it's good to know what features help a salesman. Maybe I can design in some additional appeal."*

teach whenever possible and call on department heads and others when needed. At the present time, 70 persons are enrolled in the company's do-it-yourself training program.

New Facts on Buying

Through the years, companies have spent untold sums chasing that elusive shadow, the qualified customer. Through telephone surveys, old-fashioned bell-ringing, direct mail, and other methods, many companies try to track down the prospect who firmly intends to buy.

But a new survey of consumer buying habits by Batten, Barton, Durstine & Osborn, New York advertising agency, shows that the path to purchasing is paved with good intentions that frequently crumble.

Over a five-year period, BBDO asked thousands of consumers at the beginning of each year for a rundown of the products they intended to buy. At the end of each year, the same people were asked for lists of the products they had purchased.

From the comparisons of intentions with actual purchases, a definite pattern emerged. Broken down into product groups, the pattern showed that about three-fourths of major appliances and four-fifths of new cars were purchased by people that at the start of the year were uncertain or had no intention of buying.

This pattern developed in relation to appliance-buying prospects:

- 16 per cent intended to buy, and about seven out of ten of these actually bought before the year was out, accounting for about 23 per cent of the total volume of appliance sales.
- 48 per cent were uncertain, and about half of these did buy, accounting for half of all appliance sales.
- 36 per cent had no intention of buying, but before the year was out about one in three did buy, racking up 28 per cent of all such sales.

Among the people questioned about their plans to buy new cars, only 6 per cent had intentions to buy, and only about half of these actually did make a purchase, accounting for 21 per cent of all car sales. However, in sharp contrast, the people who had no intention to buy accounted for 48 per cent of sales.

In addition, from half to three-fifths of those who intended to buy a particular brand of appliance and about one-third of those who intended to buy a specific make of car actually bought a different company's product.

This new survey reflects the need for well-developed and aggressive sales programs, since it shows that the largest group of potential customers are those who have not yet made up their minds to buy. Because intentions to buy are desultory and brand loyalties inconstant, companies are realizing the need for fresh creative marketing of new products on a continuing basis.

Concludes BBDO: "We may not know what finally triggers buying action, but we do know that the successful sales stimulant is to be found in these marketing fundamentals: a well-developed product, a sound distribution system, a realistic pricing policy, a strong advertising program, and a conscientious sales effort."

Also pointing up the need for increased marketing efforts is an economist's prediction that, to avoid general unemployment, the economy will have to swell to the $700 billion level by the end of the next decade. Arno Johnson, vice president and senior economist for J. Walter Thompson Company, New York advertising agency, emphasizes that if his prediction holds true it will mean our total standard of living must surge upward by more than 50 per cent. Says economist Johnson: "That's the equivalent of adding our entire prewar 1939 total consumption on top of our present high standard of living. In other words, we must accomplish in the next ten years as much improvement in our total living standards as we did in the previous 200 years from colonial times to 1939." —T.K.

BUYING USED EQUIPMENT

continued from page 45

fered equipment honestly, and carry out "the spirit and letter of all agreements and contracts."

Violation of the code leads to suspension or expulsion—a serious sanction, since it cuts off the dealers from MDNA's perpetual inventory system, which provides every member with illustrated data sheets on each major item of equipment offered by fellow members.

It's been estimated that half an average dealer's sales are made through other dealers, who receive commissions. Thus the inventory program is of top importance to an MDNA member. It's also important to his customers. They can now go to any member dealer and be pretty sure of locating a given machine tool if anybody at all is offering it on the market.

Serving customer needs

A large number of dealers have rebuilding facilities of some sort. Some have tremendous plants devoted to rebuilding the heaviest equipment in the industrial lineup. In addition to rebuilding tools for their own used sales departments, these specialists offer their services to fellow dealers and to factories that want to refurbish their equipment.

Dealers provide a number of other services for their customers. Many are willing to finance a purchase. Their close acquaintanceship with the market often enables them to give good advice on a customer's over-all equipment needs. It is not unusual for a dealer to line up an entire plant for a small factory. On guaranteed equipment, dealers will provide repair service and can often give extremely fast parts delivery.

They will accept old equipment in trade for more useful machinery, and many even stock new equipment, accepting trades against this, too. Though brokers specialize in it, stocking dealers also will arrange direct purchases of surplus equipment from factories.

There are no hard-and-fast rules governing the cost of used machinery or, for that matter, the price a dealer will pay for surplus equipment. Too many factors are involved. Obviously, a machine sold "as is" will be cheaper than a guaranteed, and possibly rebuilt, tool. As with all commodities, the used machine in heavy demand will cost more than a relatively plentiful item, and more up-to-date, efficient equipment bears a bigger tag.

Speaking in the broadest terms, guaranteed machinery in medium demand, and from five to fifteen years old, will cost 40–60 per cent of the price of an equivalent new unit. Market conditions can make this used price vary considerably.

There is even more latitude in the price a dealer will pay for surplus equipment. The lowest prices are offered for highly specialized gear with a limited market. The more standard and generally applicable an item, the better the return it brings to the disposing factory. Smaller-size equipment also has a relatively higher resale value, and a well-known brand commands a better price.

THE AUTHOR • Art Zuckerman is a frequent contributor to business and consumer publications. A graduate of New York University, he is with Fairchild Publications as an editor of *Footwear News* and previously was merchandising editor of *Drug Topics*.

Such items as tool room machinery, milling machines, smaller machines, smaller lathes, and smaller drills have relatively high resale value.

Obviously, the age and condition of the machine are important. If a dealer must rebuild a machine before selling it at a profit, he can't afford to pay as much for it.

What the dealer offers

Again speaking broadly, a machine in moderate demand that is in good condition and from five to fifteen years old may command 15 per cent to a third of replacement value from a dealer. This can amount to a substantial proportion of original cost due to the inflation factor.

Take, for example, a standard turret lathe, with an $11,000 replacement value, that cost a factory $4,800 some ten years ago. A dealer might offer from $2,500 to $3,500 for it and plan to resell it for $4,500 to $5,000.

Used equipment dealers flourish under two sets of circumstances: a scarcity of investment capital or a major break in a product market. During the recession, many companies paid much closer attention to the used market than is their custom.

In normal times, however, the smaller company is the best customer

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for used equipment. The more limited its capital and credit, the more likely it is to invest in used tools.

All things being equal, the industrial giant, on the other hand, may spend little more than 1 per cent of its capital budget on used machinery. Of course, that 1 per cent buys two to four times as much used equipment as it would new.

When quick procurement or economy aren't important, the major company prefers new equipment for its established, long-term production lines, although it may not ignore a like-new surplus machine that fits its needs.

Even in purchasing new equipment, though, the big manufacturer has reason to be grateful for the used market. It provides a ready agency for disposing of the equipment being replaced, and it provides cash to help underwrite modernization.

Used tools for special jobs

Despite their normal preference for new production equipment, large concerns are nevertheless quite fond of used machinery for production on short-term contracts, for pilot plant operations, and for research and development and maintenance applications.

Buying used equipment for pilot plants has proved a good idea for many companies. If the new product doesn't jell, the first—and always the largest—depreciation loss on the production tools is avoided.

Large companies have also found used equipment the key to cost cutting. One fabricator had been buying stampings outside the company. A little figuring revealed it would be cheaper for the company to make its own stampings. Six punch presses were necessary, and, at a time when deliveries of this item were unusually slow. A used dealer gave immediate delivery. The company not only began saving money sooner, but saved more than it had anticipated, since it had a smaller investment to amortize.

Maintenance departments are quite often equipped with used gear because new equipment is unnecessary for the relatively light service required. Equipment which might otherwise be rented as needed often proves more economical to buy used.

When a manufacturer considers the purchase of used production machinery purely as an economy move, experts in the field suggest the application of these yardsticks:

1. Will the savings justify a possible lower rate of productivity than a more up-to-date unit might provide?
2. Will a breakdown of the machine result in production losses exceeding repair costs?
3. Will the savings on the price of a new unit justify a used-item purchase? (One admittedly arbitrary rule of thumb requires the used machine to cost no more than two-thirds the price of a new tool.)
4. Will parts and service be available at the place of operations?

Under the present tax structure, used machinery doesn't fare quite as well as new equipment on depreciation deductions, but it does better than may be generally realized. For instance, the Small Business Tax Revision Act provides an initial 20 per cent depreciation allowance for the first $10,000 of cost on all equipment, new or used, which has a useful life of at least six years. If the taxpayer is unincorporated and files a joint return, the 20 per cent initial allowance may be applied to the first $20,000 of cost.

This deduction can be charged against any equipment purchased after December 31, 1957, and it can be taken for any tax year ending after June 30, 1958. And this allowance is a bonus that can be used in addition to regular depreciation allowances.

Writeoffs on used equipment

One of the most common rapid tax-writeoff systems is the declining-balance method. Under this method, a new machine can be written off at a rate up to 200 per cent of the straight-line rate. On a used machine, a manufacturer can deduct up to 150 per cent of the straight-line rate.

For example, a $10,000 used machine has a remaining life of ten years. Under the straight-line system, the annual depreciation rate would be 10 per cent. Under the declining-balance system, the machine can be written off at 15 per cent, making the initial depreciation allowance $1,500. For the second year, this allowance is then subtracted from the total value, and a new computation is made.

As with all things, there is a right way to buy and sell on the used market. Men experienced in the field offer this advice to companies disposing of surplus equipment:

1. Be absolutely certain some department or division of your own company can't use the machine before you sell it. Many large companies send around a list of all surplus equipment to their divisions. Equipment is sold outside the company only after all division heads have had an opportunity to requisition it.
2. Make the equipment easily accessible for inspection. The harder it is to inspect, the lower the price you're likely to get.
3. Offer the surplus machinery to several dealers to get the best possible price.
4. Don't hold out too long for a better price than you're offered. One chemicals manufacturer tried this with a surplus set of filters. After five years of playing hard to get, the company discovered the filters had become obsolete.

SPECIFICATIONS *of a tablet press are checked against a customer's request by Norman Hascoe of Chemical & Process Machinery Corp., Brooklyn, N.Y. Stocks maintained by used dealers enable them to fill rush machinery orders quickly.*

Guideposts for buyers

Buyers of used equipment might well remember these pointers:

1. Don't be guided by price alone. Reliability is a more important cost factor in the long run.
2. Make sure you inspect the machine thoroughly and that the terms of the guarantee protect you fully.
3. On a standard item, shop several dealers for the best price.
4. Make sure that parts and service are easily obtained. The original manufacturer can help you on this if you get the unit's serial number.

And, finally, take a lesson from one food products manufacturer who neglected to check the power requirements of the motor on a used mill. He quickly discovered that they didn't match his factory's power supply. Result: an additional $1,800 expense replacing the motor. END

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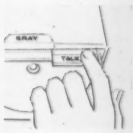

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In an exclusive DR&MI interview,
Vice President Nixon lays it on the line:

"Politics Is Your Business!"

PAUL WOOTON, *Contributing Editor*

FROM NO less-seasoned a campaigner than Vice President Richard M. Nixon comes the exhortation to American business men to "roll up your sleeves and go to work" to create a political climate in which private enterprise can be preserved.

Mr. Nixon, in an exclusive DR&MI interview, bluntly advises business leaders to stop "standing on the sidelines, wringing your hands, and wondering why someone fails to do something about a problem that directly affects you."

As a skilled practitioner of the art, Mr. Nixon has some pointed advice for the business executive just entering the political field. The drive, ingenuity, and training acquired in the conduct of his business are valuable political assets, but the Vice President warns that political activity is a year-round endeavor which must be put on "an organized, result-giving basis."

Getting the lawmaker's ear

Only by intensive organization and a carefully planned approach can business men make an impression on Government bodies, Mr. Nixon says. While he deplores the attitude, the Vice President acknowledges that in many cases the testimony of a successful business man in support or opposition to legislation is discounted because of a tendency among politicians to be hypercritical of business executives.

"Good government is not achieved," says Vice President Nixon, "when good citizens fail to take an active interest in the selection of public officials. Government policies affect nearly every individual, but business men have a special responsibility because, operating through a competitive enterprise system, they have played an important part in making possible the highest standard of living in the world." Mr. Nixon urges "a maximum contribution from the business community," adding that no effort in a free nation can be total without such support.

Richard M. Nixon

First learn the mechanics

Practical politics requires a knowledge of techniques which few business men have mastered. For this reason, political action workshops are being formed on the precinct level to teach business men the skills they need to be effective leaders. Mr. Nixon heartily endorses this approach and suggests that individual business concerns, trade associations, and chambers of commerce set up similar workshops to prepare members of the business community to work skilfully with the regular party organizations.

His interest in promoting greater business participation in government, Mr. Nixon told DR&MI, is based on the conviction that "the best way for the American people to improve their living standards is through policies that promote maximum business growth."

On labor and taxes

From his office in the Capitol, Mr. Nixon outlined for DR&MI his views on some current business problems, including taxation and labor relations. "Confiscatory tax rates in the highest brackets of personal income stifle risk-taking and encourage tax avoidance," he said. "Were they reduced, revenue loss would be more than offset by the business expansion that would result. The present hodgepodge of excise taxes should be overhauled. And more liberal treatment of depreciation is needed to spur capital expenditures."

The Vice President endorses the President's demand for strong Governmental controls on what Mr. Nixon calls "those labor union activities that are monopolistic in character." He believes that "wage increases which force price increases are not in the public interest or in the interest of labor union members.

"Preventing inflation is as serious a domestic problem as any we've got," Mr. Nixon asserts. "And business can do a lot to help solve it by finding ways to reduce production and distribution costs and to eliminate waste."

Mr. Nixon hopes that "those who try to override the budget are prepared to levy new taxes to pay for any

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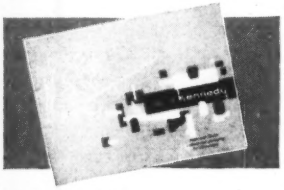

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increases in Governmental spending."

The Vice President points out that the country's economic progress is "unsurpassed in the history of the world. When the gross national product more than quadruples in 50 years —that's progress," he declares.

Isolationism is dead

However, he warns that "we must be prepared for an all-out Communist economic offensive. America never again can live in isolation. We must constantly push forward on all fronts, military, economic, and moral.

"Because peoples of the awakening areas of the world are demanding opportunities to work and to industrialize," the well-travelled Vice President asserts, "the United States must become a larger importer.

"This is necessary," he continues, "to provide the dollars to pay for our exports, to provide a return for foreign investments, and to assure ourselves of the most economic sources of raw materials.

"The amount of investment which flows from capital surplus areas, like the United States, to capital deficit areas must increase substantially. The only source of investment funds that can be greatly expanded is private capital. Private capital carries no ideology with it, but it does carry brains. The managerial skills and imagination of private capital must be the chief reliance of the underdeveloped countries.

"We should complete our membership in the organization for trade cooperation. We should expand private investment abroad for the primary purpose of creating new wealth. Top priority should be given the training of nationals of the foreign countries so they can assume managerial responsibilities."

The Nixon philosophy

Vice President Nixon says he is sure "Communism's gains have been made possible by exacting inhuman sacrifices from the people," but he asserts that "free men in the long run will out-plan and out-produce a slave economy."

In summing up his personal economic philosophy, Mr. Nixon declares: "The most productive source of economic progress is private rather than Government enterprise. Private initiative, private responsibility, and private capital are the motors of economic progress." END

BUSINESS AND CONFORMITY
continued from page 43

of the qualities usually attributed to the "organization man" and individualist, adjusting and adapting their approach to associates and subordinates to achieve the corporation's objectives in the most harmonious and efficient way.

The president wears two hats

Many presidents seem to see themselves in a double role, individualist in their independence of decision and thought and "organization men" in their negotiating skill, ability to delegate, objective search for facts, and in what appears to be an almost impersonal dedication to the company.

In being as individualistic as the situation will permit, rarely does the president mention much inner conflict. According to his own testimony, he seems to have a clear picture of himself and his executive function and the conviction that the corporation is certainly larger and more enduring—and possibly more important—than those who work for it. He feels neither rebellious nor, as Whyte has suggested, "imprisoned in brotherhood." He insists he is able to maintain independence of thought along with the ability to work as part of an organization team.

While at times it may be misleading, the analogy between management and a sports team has become so closely associated with business organization and thinking that the president easily identifies his company role with its team equivalent. Do good team players make the best company presidents? Half the men say *not necessarily*, compared to four out of ten who believe a good team player does make the best president and one out of ten who say he doesn't.

Leadership qualities, in addition to group spirit, are usually imputed to the team player by those who believe he makes the best president. "A team player will know how to lead. A star is likely to be more interested in shining alone," says one man. Team playing, this group believes, develops the executive's ability to get people to work *for* him and *with* each other. One top executive comments that if the men under him do not feel that they are part of a team, he, as president, will be frozen out of the many phases that need his direct guidance.

Some of the dissenters say that team

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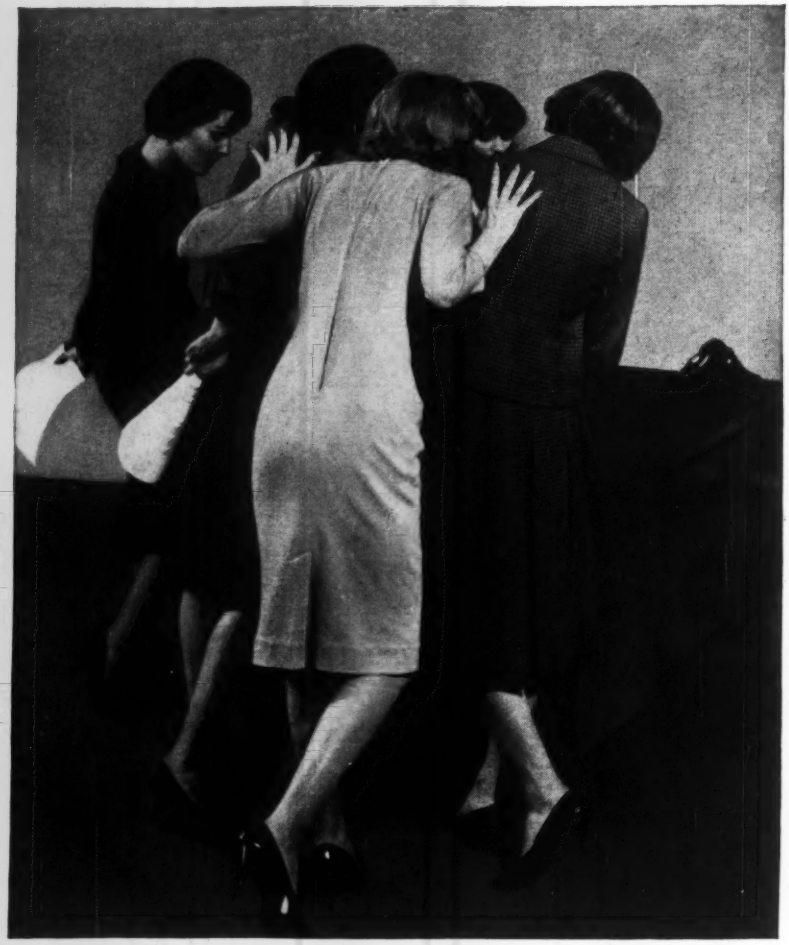

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players "only make for the most pleasant atmosphere. Many a tough S.O.B. runs a hard-hitting and effective show." But most of the men believe that the president's function on the team is that of a quarterback, coach, or signal caller. Even the presidents who see themselves as players insist that they are something more than linemen. Most of the men agree that what they are after, regardless of how they work with the team, is rapport and support. Many presidents prefer to think of themselves as a quarterback who calls the plays and doesn't permit the players to turn the huddle into a town meeting.

Pro and con on testing

Personality tests (like motivation research, with its supposed Machiavellian threat of hidden persuasion) have been suspected of lending themselves to questionable uses—in this case, exalting safe mediocrity at the expense of sacrificing the unique, creative individual. Specifically, it has been said that these tests of the inner man, when applied to the selection of executive personnel, tend to weed out those who will not conform to the image of the "organization man."

For a top management slant on these issues, the question of where, when, and how personality tests should be used in business was submitted to the DR&MI Panel. Sixty-five per cent of the respondents regard the tests as a useful tool. They consider them most effective at the raw recruiting stage or as one step in finding executive material among younger men in the lower management strata. As one approach in a methodical talent search at these levels, personality tests are considered valuable for screening, gaining insights, checking impressions, confirming judgments reached by other means, and for suggesting elements to review in further interviews.

Typical of this view is one president's comment: "Personality tests, particularly of the projective type, in the hands of a qualified psychologist, can give valuable insights into the personal strengths and weaknesses of an executive. While these insights may not often be critical determinants in the selection of a man, they can provide valuable guides as to how to work most effectively with him."

Presidents who favor the tests also stress the importance of judgment based on interviews, job performance, and further checks on the candidate's

background. Many presidents believe that the most important clue as to what a man will do is what he has actually done in the past.

Among the skeptics, comments such as this are common: "In theory, personality tests should be useful, but my experience with them has been disappointing. The best plant manager we have made a poor showing on the tests."

Despite the fact that 71 per cent of the Panel insists that large organizations don't stifle individualism, the otherwise qualified man whose outspoken views or personal beliefs are so extreme as to set him apart from other top managers would have a difficult time winning a promotion to the top echelon.

While the reasoning behind the votes cast says considerably more than the vote itself, a tally gives a quick indication of how the DR&MI presidents regard the nonconformist: 15 per cent would readily promote such a man, as against 16 per cent who definitely wouldn't; 30 per cent would do so under certain conditions, and another 30 per cent probably would not. The rest—9 per cent—prefer not to generalize on a situation that, they insist, must be appraised only in specifics.

Can the maverick coexist?

But regardless of how he casts his vote on this critical decision, the president tends to say that he is far less concerned—and often not at all—with what the maverick believes than with his effectiveness on the team. It is in appraising this potential effectiveness that presidential opinion varies most. It is commonly pointed out that the manager needs respect to gain cooperation and support, and that promotability depends on whether the man will be respected, regardless of his views.

A number of presidents, believing the maverick promotable, suggest that he is a stimulant and helps keep the team broad-gaged. Some even suggest that promotion and higher responsibility themselves tend to mellow an outspoken individual.

At the other extreme, the presidents who would definitely not promote a nonconformist make comments such as these: "The path of cooperation is difficult enough without adding obstacles and distractions," or "Anyone who speaks out his personal beliefs to the point where this characteristic sets him apart from his associates un-

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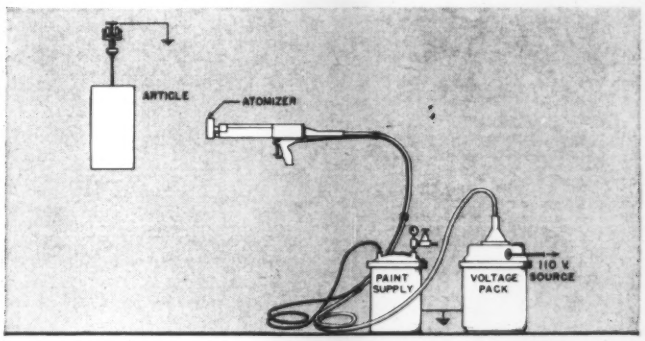

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doubtedly disqualifies himself for a top post on the ground that he lacks discretion."

One president who wouldn't promote an outspoken extremist echoes these views and adds others. The maverick is a deterrent, he says, to organization planning and disrupts teamwork; intolerance, belligerence, and argumentativeness create friction and impair effectiveness; "crusading or fanaticism generally do not fit well into top management."

But a substantial number of presidents are willing to make room on the team for the maverick under certain conditions. Two of the commonest conditions: if he does not antagonize associates and if his beliefs are sound or rational, although who is to determine this and how it is to be done are not suggested.

Fanatics need not apply

In any case, the president would be extremely cautious about promoting the man with uncommon views. Potential effectiveness is again the key, and is summed up best by this man's view: the extreme individualist's promotability to the top team "would depend on the nature of his outspoken views and whether they destroyed or significantly minimized his usefulness in the organization. For example, an admitted agnostic or one who advocated a return to the Gold Standard might be perfectly acceptable if he did not try to proselyte his associates or did not confuse his personal views with his official duties."

Conformity in management practices is acknowledged by both the critics and the business leaders. In an effort to solve its own problems, management is sometimes quick to jump at someone else's successful solution. Is management guilty of too much "follow-the-leaderism" in any particular areas, such as programs, policies, and approaches? While a good many of the DR&MI Panel presidents think not—or if so, that imitation of success is not necessarily bad—others do think that imitation has been carried to extremes in certain areas.

The areas most frequently mentioned are collective bargaining and labor contracts, compensation policies and practices, management development programs, and advertising and public relations. But almost anything the business does functionally is subject to excessive imitation, say the chief executives—among these, merger, decentralization, sales and marketing policies, expansion, integration of operations, diversification and new product development—or, as one man sums it up, "all the broad swings."

Adaptation, not imitation

Few presidents see any danger in following others' successful practices, provided they are modified, adapted, and tested within the company for workability. They believe it is quite natural—and often makes a good deal of sense—to adopt workable methods and programs that have helped other companies. "Every alert executive keeps informed to the fullest degree with regard to what is taking place in business generally and in competing businesses specifically," one man points out. But dangers and excess are seen by some presidents in what is imitated and also in its more uncritical applications.

How the president views himself, his people, and his organization will, to a considerable extent, temper the corporate atmosphere in which either conformity or individualism, or some blend of the two, will predominate. But unlike those who rather hotly contend that big business snuffs out individuality, the president, admittedly with a bias of his own, tends to be more concerned with the effectiveness of the men in the organization than with how the organization may affect the man.

He expects individual efficiency, and he recognizes that jobs vary and that not every man need be or can be imaginative or highly innovative. He insists that the corporation needs men of many kinds at many levels to do its work.

He sees usefulness in some aspects of the "organization man." And he does not assume that cooperativeness and considerateness mask a rebel, seething with suppressed, private causes. More often, he interprets harmony and helpfulness as respect—the respect of men for each other and for the job at hand. —KENNETH HENRY

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What's the future of today's small manufacturer? How can he prosper among the corporate giants? In the May issue, small-company presidents join the Panel in answering the key questions of size and survival.

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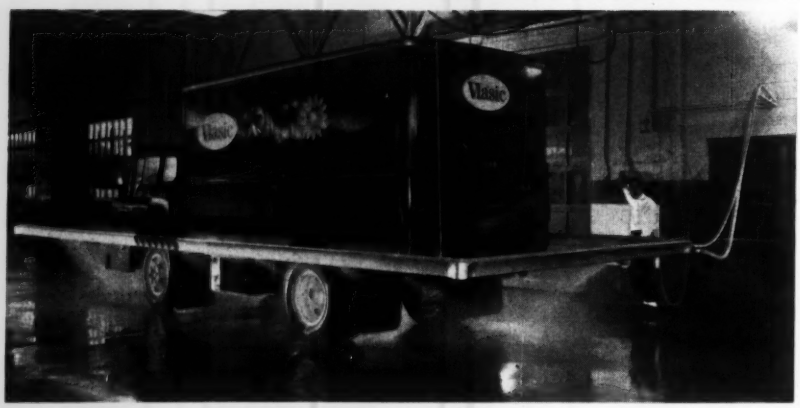
KEEP 'EM DRY: Pipe covering of rigid cellular glass is said to offer the advantages of other commercial insulation at the same approximate linear-foot cost. Foamglas core is factory-wrapped with a kraft and aluminum foil laminate that can be left white or painted with water-based paints. The covering is fire- and waterproof and has a high compressive strength that allows it to be applied to pipes before they are hung. "Stay-Dry," Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22.

DOUBLE PUNCH: Payroll auditing is speeded up with a time clock system that punches holes in employees' time cards as it prints the time. The punched cards are fed through an "auditor" that separates cards for those employees who have worked less than a full pay period. Auditing speed is 1,800 cards per hour. The cards can also be key punched for use with tabulating equipment. Cincinnati Time Recorder Company, 1733 Central Ave., Cincinnati 14, Ohio.



WASH 'EM DOWN: Overhead, semi-automatic truck washer can clean a truck up to 65 feet in length in as little as seven minutes. High-velocity water jets and a special detergent-plus-wax do the trick. Washer requires only one man to operate, and needs no special floor tracks that interfere with garage routine. Choldun Manufacturing Corp., 331 East St., New Haven 11, Conn.

FEWER SLIPS: Product damage and hazards to employees can both be reduced by applying anti-skid "Ludox" colloidal silica coating to cartons. Use of the coating permits tilting up to 30 degrees before slipping occurs, compared to 15-degree tilt for untreated cartons. Coating is applied by carton manufacturer when specified. Additionally, the manufacturer claims "Ludox" tends to repel dirt, keeping packages cleaner. Du Pont, Wilmington, Del.

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more news on page 156

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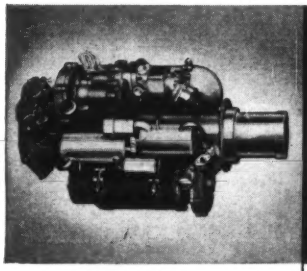
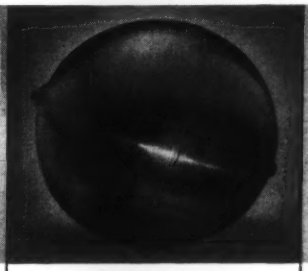
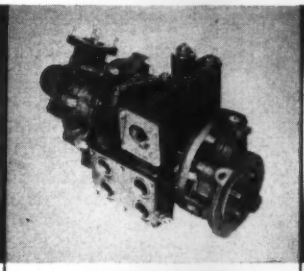


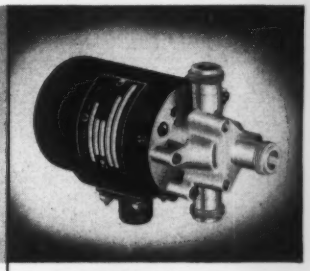
Solid-propellant auxiliary power unit



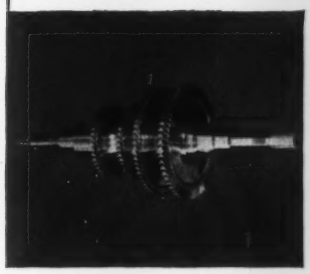
Titanium missile pressure vessel



Combination main and after-burner fuel pump



Coaxial switch



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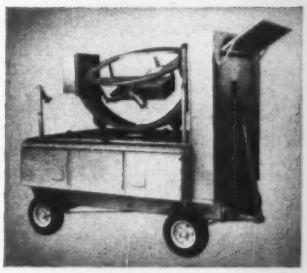
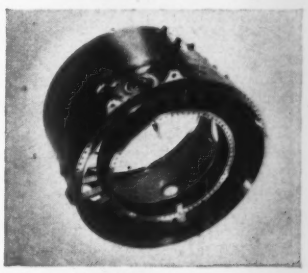


Missile gyro ground test unit



Jet engine case assembly

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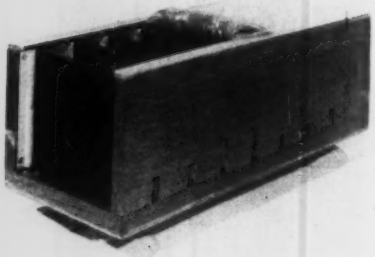
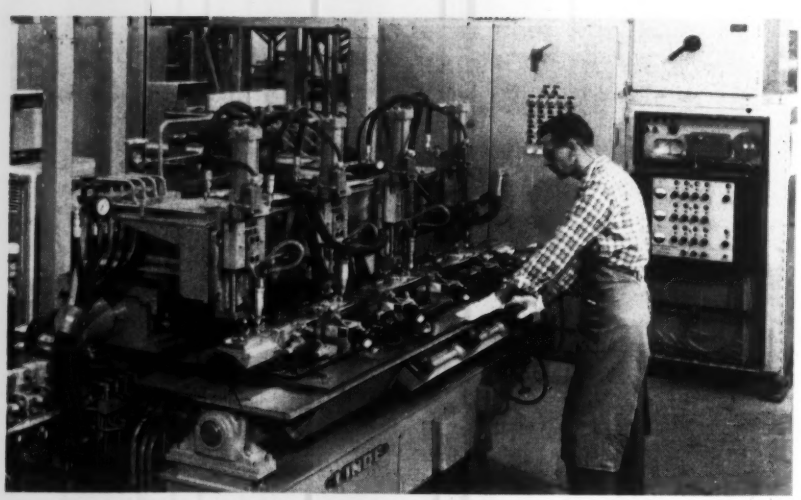
SEE IT NOW: Wall chart kit permits easy plotting of business trends, organization structure, or marketing and coverage maps. Kits come with ruled wall board and colored letters and papers that have pressure-sensitive backing to facilitate change of information. The manufacturer, not unnaturally, suggests using a number of kits for a "chart room." "Execuflex Chart," The Chartmakers, Inc., 480 Lexington Ave., New York 17.



SUPER SHINE: Manufacturers with operations requiring "super-clean" employees may be interested in this shoe-cleaning box, designed to remove dirt and lint from shoes as large as size 14. The box is lined with a series of nylon brushes—extra stiff on the bottom and extra soft at the top—which are anchored by magnesium holding channels and can be easily replaced. Industrial Division, Stanley Home Products, Easthampton, Mass.



BY THE NUMBERS: Multiple-torch spot welder is tape-controlled, requires access to only one side of the joint. Machine shown produces 2,520 spot welds per hour with four heads. Linde Company, 420 Lexington Ave., New York 17.

"FLOAT GLASS," from England, is said to be as distortion-free as plate glass and still have the fire-finished surface of sheet glass. The product is now sold in limited quantities at plate-glass prices, but it's expected that the price will drop as the supply increases. Pilkington Brothers Ltd., St. Helens, Lancashire, England.

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MARBLE CURTAIN WALLS for building exteriors compare in cost with other facings by eliminating conventional heavy masonry construction. Panels have an extruded aluminum framing that is claimed by the manufacturer to be weather- and moisture-sealed when joined. Vermont Marble Company, Proctor, Vt.

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SALES SLIPS, PLUS: Point-of-sale cash register provides punched paper tape or price tags for data processing equipment. Information recorded can include clerk's commission, sales audit, and department sales, among other data. The punched tape is then run through an "Electronic Audit Strip-Reader," which supplies information as direct input for computers or puts it on magnetic tape for subsequent handling. Sweda Cash Register, Inc., 7313 North Harlem Ave., Chicago 48.

•

SURFACE SPARKLE for consumer products results from adding tiny bits of metallic foil during manufacture. Called "Metalflake," the foil bits are available in a variety of shapes and thicknesses, and are already being used in vinyl floor coverings, gift wrappings, and chenille fabrics. The Dobeckmun Company, 3301 Monroe Ave., Cleveland 1.

•

PRIVATE POWER PRODUCERS may have run into a problem that has long plagued utility companies: squirrels who nuzzle against high-voltage wires, thereby electrocuting themselves and shorting out the system to boot. Although no one has yet figured out why squirrels climb the poles at all—some say they're attracted by the transformers' hum, while others think they'll climb anything resembling a tree—a practical answer to the problem is now at hand. It's a specially designed transformer box that shocks the rodents just enough to scare them away so they won't disrupt service. Both Westinghouse and General Electric offer such equipment. —R.P.

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At U.S. Army field communications centers, Kleinschmidt torn tape relay units send, receive, retransmit messages to widely-dispersed commands

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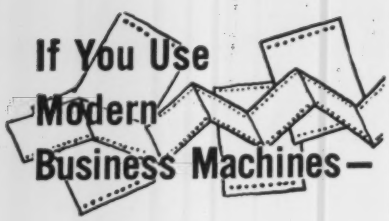

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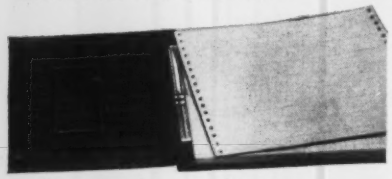

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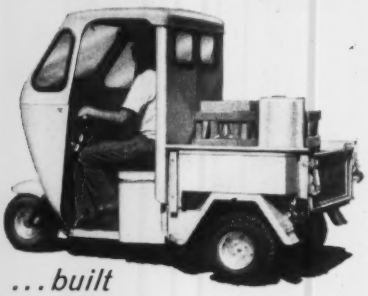

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PROFIT-MINDED MANAGEMENT
continued from page 47

ager adjust his sights. And translating operating profit goals into return on investment goals impressed on each manager the full meaning of running a business.

In the very beginning, Sun eliminated the misconception that return on investment can be determined merely by dividing profits by total assets. The formula it used was devised to give a division manager a clear picture of how to calculate return on investment in the terms of turnover, divided by profit as a percentage of sales.

The hidden potentials

In a nutshell, Sun told its division managers it expected them to stretch to reach as far as they could, but not to pursue rainbows. Operating budgets, they were told, must project results requiring more than average effort in both planning and accomplishment, but they must be attainable. They must take into consideration objectives which can be converted into a return on investment so that top management can assign to the division the assets required for operation, a fair share of present and future markets, profitable product development, practical plant expansion, and sound acquisitions to help it reach specifically determined goals more quickly and more cheaply.

Certain yardsticks and procedures were recommended for establishing these budgets. For instance, Sun asked each division manager what the potential was in each market he served. In order to help him determine the answer, the company's first market research department was organized. Access to such services is one of the most important advantages a corporate division has over an independent company of similar size.

New products, new markets

The new market research department discovered there were many untapped markets for basic products. For instance, although Sun produced 98 per cent of the specialty waxes used in polishes, there was a much bigger demand for special waxes used in the packaging field, to which it already sold printing and lithographic inks. We immediately undertook extensive research and development of waxes for packaging.

After investigating what other products could be economically produced by existing facilities, we began production of a line of textile print colors at our recently acquired pigments plant, taking advantage of our extensive know-how in pigments and inks and our market position in textile chemicals.

Additional studies were made to determine what other products used by present customers could be produced advantageously with added facilities. Although we were in the packaging field with printing and lithographing inks, we were not major competitors in the manufacture of flexographic inks. After studying the market and the costs of getting into it, we acquired the leading manufacturer of flexographic inks with five strategically located plants.

Charting long-term growth

Obviously, before undertaking any product expansion, it was important to determine whether added products would strengthen present marketing programs or injure them. This question was studied not only by the division manager who would manufacture the product and by the management committee, but also by other divisions serving the same market.

The division manager is then in a position to draw up an annual budget tied in with a five-year growth plan. This is reviewed and approved by the budget committee after adjustments of any differences in appraisal of basic information.

These budgets are, of course, part of a long-range program which is subject to change. Monthly progress including sales, cost of goods, selling expense, return on assets, and share of a market is plotted against a curve representing the agreed upon goals. Sun has found that a much clearer picture of operations can be presented in the charting of progress curves against objectives than by dollars-and-cents comparisons. Division managers are frequently called into conference with the management committee to adjust goals according to changing conditions and to discuss any serious lags.

Proof of the pudding

This continuous review of charted progress and a quick check on serious deviations prevents long-range plans from being forgotten by a division manager intent on solving some

problem by expediency or attaining some temporary objective.

The proof of the pudding is in the fact that during the first year the corporation's five-year growth plan was in operation, the goal was exceeded.

This accomplishment reflects numerous innovations originating in middle management. Responsibility for specific plant operations was assigned, some products were dropped, others were added, and unproductive personnel were eliminated without interference with operations or growth.

Slump spurs saving

The 1958 business recession was felt throughout Sun Chemical because, with but few exceptions, our products are sold to other manufacturers. However, the business slump provided further incentive for division managers to examine their operating costs closely and strive for practical reductions. In the area of personnel, a 9 per cent reduction was achieved smoothly without touching sales and technical staffs.

The final problem to be solved was to set up the kind of incentive compensation plan which would be of greatest benefit to the corporation by encouraging steady, profitable growth and maximum cooperation among the divisions.

Bonus for profit boosters

The answer decided on was to key incentive pay to achievement of objectives which are established when budgets are approved. A member of the Sun management team can receive a bonus of up to 50 per cent of his annual salary according to the degree to which he achieves or surpasses profit objectives. We believe that bigger bonus payments are unwise because the recipients may adopt a standard of living that cannot be sustained in periods when a large bonus cannot be earned. The bonus is figured on the basis of 10 per cent of salary for attainment of 90 per cent of the

---

THE AUTHOR • Norman E. Alexander was president of Ansbacher-Siegle, pigment manufacturers, before being elected in 1957 to the presidency of the Sun Chemical Corp. A member of the Young Presidents Organization, Inc., since 1952, Mr. Alexander took his B.A. degree from Columbia University and his LL.B. from Columbia Law School and attended Harvard Graduate School of Business Administration.

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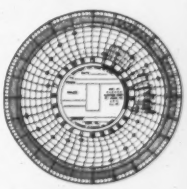

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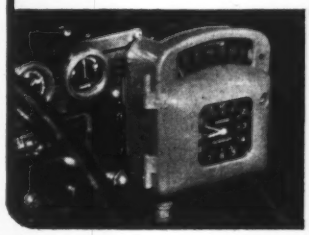

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established objective (expressed as return on investment), plus an additional 1 per cent for each 1 per cent above the 90 per cent starting point, up to 130 per cent fulfillment. Consider the following example:

Objective return on investment	20%
Actual return	19%
Portion of objective achieved	95%
Incentive compensation (10 per cent of basic salary for 90 per cent achievement plus 5 per cent for additional achievement)	15% of basic salary

In new product development operations and other situations where the accepted objective for the year assumes a loss or a return on assets of less than 10 per cent but still shows satisfactory improvement and constructive planning, the difference between the net loss or small profit for the previous year and the net acceptable loss or profit for the current year is considered to be 100 per cent. For attainment of 90 per cent of this total required improvement, an executive would receive 5 per cent of his annual salary rate at year-end, plus an additional ½ per cent for each 1 per cent of improvement up to 130 per cent of his established objective.

A stake in corporate gains

An important feature of the plan is that group vice presidents earn one-half of their bonus on the achievement of their individual groups and one-half on corporate accomplishments. This emphasizes their role as corporate officers, places an incentive on group accomplishment, and stimulates coordinated interest between groups. Each member of middle management is encouraged to meet his profit objectives by his own initiative, and there is no such excuse as, "I wanted to, but the brass wouldn't let me."

Although our program of decentralization is still in the process of development, in two brief years we have been able to demonstrate that it is possible for a diversified company to attain at the divisional level the drive and operating flexibility inherent in a small, well-managed company; that practical controls can be maintained with divisions operating under a high degree of autonomy; and that incentive compensation can be used effectively to obtain growth as well as a satisfactory return on investment.

At Sun Chemical, profit-minded middle management is pushing toward a common goal. —END

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Not only employment figures, but inventories, savings, exports, commercial figures, and other indices trail or spurt ahead of a business trend. The rhythms of commerce and industry are as varied in tempo as the currents of life itself. Any reader of DR&MI's monthly "Trend of Business" by John W. Riday or the analysis of business failures by Rowena Wyant has observed these tendencies among the reliable indicators of our economic health.

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Our diplomatic policies need the vigorous, intelligent, and sophisticated support of business men who are mature in a worldly sense. Overseas trade and capital investment require more than the leftovers of our goods, money, and thinking. We are no longer secure in our raw material resources, nor self-contained in our capacity to produce and consume.

The European Common Market with its cooperative trading and money policies will be a formidable sparring partner in competitive trading at home and abroad. America welcomes a friendly, prosperous Free Europe, but not at the expense of its own economic welfare. Both can prosper if the exchange of goods and services is a two-way trade and there is an imaginative approach to the needs of each continent.

Japan, with its low cost labor, is worrying the women's apparel manufacturers, but Japan is also our largest overseas outlet for cotton, as well as a big customer for metals and other American raw materials. The workmen of Nippon today are manufacturing quality cameras, precision tools, and other consumer items requiring close tolerances in assembly and operation.

The American business man must be prepared to meet trade competition abroad with

- a better understanding of international trading customs and monetary policies;
- better knowledge of raw material resources available, especially in Africa and South America;
- better acquaintance with the world in general through travel to overseas markets.

Contributing Editor Alexander O. Stanley, who has considered the plus and minus qualities of the European market in the past, will appraise the new opportunities for American capital investment abroad in future issues of DR&MI. In another article, Kurt Barnard will examine the promise as well as the threat of Japan's rising industrial activity. It's an invasion that can't be blocked by tariff walls or bad tempers.

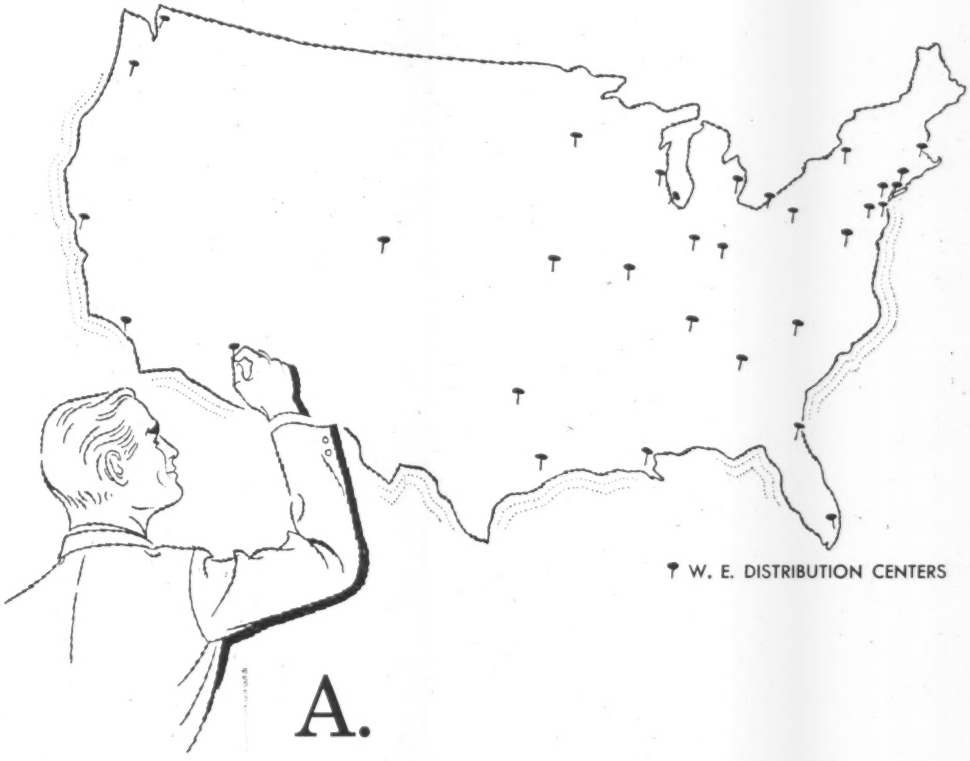
The Matter of Size

How big is big, and how small is small are questions that trouble the analyst of the business community. American business, like any growing family, has members of many sizes and ages, and the terms "big" and "small" are too vague for any definitive purpose. Some concerns grow large and prosper, some stay small and prosper, and others, large and small, fade under the pressures of market competition or management handicaps. One thing is sure—the United States, with its variety of wants, requires the services of entrepreneurs of all sizes.

In the May issue, members of DR&MI's Presidents' Panel will consider "corporate size" in all its ramifications, offering some pointed opinions on the justifications for bigness and casting some light on the frequently confused implications of the term "small." —A.M.S.

Q.

What's the dollars and cents reasoning behind the 32 strategically located distribution centers Western Electric operates for the Bell Telephone System?



A.

Simple! Our handling the distribution of equipment and supplies eliminates duplication of storage facilities. This holds down overall Bell System inventories...helps to keep the System's capital investment at lowest possible levels.

Western Electric

MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

Good bet: You're paying for lubricants you don't need

Does this case sound familiar to you?

A midwest firm was buying lubricants on the recommendation of every department head, foreman or even operator. Inventory — often duplicated — was scattered all over the plant, yet shortages in one spot were never related to overstocks in another. The result: costly overstocking, extra handling, increased dangers of misapplication.

Management then instituted an Organized Lubrication Plan. Now they use 20 lubes instead of 97, have cut their purchase orders from 300 to 12 per year. Direct savings are estimated at thousands of dollars annually.

Can Organized Lubrication save money in your plant? Contact your local Texaco Engineer or write for "Management Practices that Control Costs via Organized Lubrication." The Texas Company, 135 East 42nd Street, New York 17, N. Y., Dept. D-80.

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